

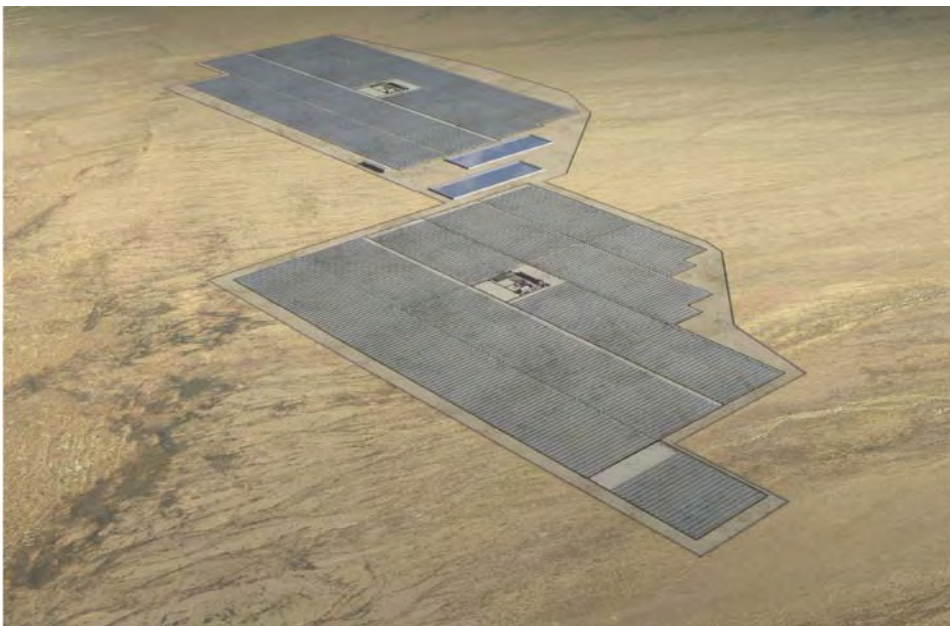
**Bureau of Land Management**

**PLAN AMENDMENT/FINAL EIS**

**FOR THE**

**GENESIS SOLAR ENERGY PROJECT**

Volume 1 of 3



**August 2010**



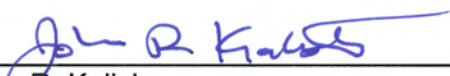
United States Department of the Interior  
Bureau of Land Management

**Plan Amendment / Final EIS  
for the  
Genesis Solar Energy Project**

For the

**Palm Springs – South Coast Field Office**  
Palm Springs, California

**August 2010**

  
\_\_\_\_\_  
John R. Kalish  
Field Manager

\_\_\_\_\_  
Date

8/27/2010

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# United States Department of the Interior



## Bureau of Land Management

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Palm Springs, CA 92262

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<http://www.blm.gov/ca/palmsprings/>

In reply refer to:  
CACA 048880

August 27, 2010

Dear Reader:

Enclosed is the Proposed Resource Management Plan-Amendment/Final Environmental Impact Statement (PA/FEIS) for the California Desert Conservation Area (CDCA) Plan and Genesis Solar Energy Project (GSEP). The Bureau of Land Management (BLM) prepared the PA/FEIS in consultation with cooperating agencies, taking into account public comments received during the National Environmental Policy Act (NEPA) process. The proposed decision on the plan amendment would add the GSEP site to those identified in the current CDCA Plan, as amended, for solar energy production. The preferred alternative on the GSEP is to approve the dry cooling alternative to the right-of-way grant applied for by Genesis Solar, LLC.

This PA/FEIS for the GSEP has been developed in accordance with NEPA and the Federal Land Policy and Management Act of 1976. The PA is largely based on the preferred alternative in the Draft Resource Management Plan-Amendment/Draft Environmental Impact Statement (DRMP-A/DEIS), which was released on April 9, 2010. The PA/FEIS for the GSEP contains the proposed plan and project description, a summary of changes made between the DRMP-A/DEIS and PRMP-A/FEIS, an analysis of the impacts of the decisions, a summary of written comments received during the public review period for the DRMP-A/DEIS and responses to comments.

The BLM will be accepting additional public comment on the PA/FEIS within 30 days after the Environmental Protection Agency publishes the Notice of Availability in the Federal Register. Comments can be sent to Allison Shaffer, Project Manager, by mail: 1201 Bird Center Drive, Palm Springs, CA, 92264; phone: (760) 833-7100; or email [CAPSSolarNextEraFPL@blm.gov](mailto:CAPSSolarNextEraFPL@blm.gov). All substantive comments will be reviewed and responded to in the Record of Decision.

Pursuant to BLM's planning regulations at 43 Code of Federal Regulations (CFR) 1610.5-2, any person who participated in the planning process for the PA and has an interest that is or may be adversely affected by the proposed resource management plan amendment may protest such amendment within 30 days from the date the Environmental Protection Agency (EPA) publishes its notice of availability for the PA/FEIS in the *Federal Register*. Unlike the planning decision, issuance of the proposed right-of-way grant is an implementation decision that is not subject to protest under the BLM planning regulations.

For further information on filing a protest, please see the accompanying protest regulations in the pages that follow (Attachment 1). The regulations specify the required elements in a protest. Protesting parties should take care to document all relevant facts and, as much as possible, reference or cite the planning documents or available planning records (e.g., meeting minutes or summaries, correspondence, etc.). To aid in ensuring the completeness of the protest, a protest checklist is attached to this letter (labeled as Attachment 2).

All protests must be in writing and mailed to one of the following addresses:

Regular Mail:

Director (210)  
Attention: Brenda Hudgens-Williams  
BLM Protest Coordinator  
P.O. Box 66538  
Washington, D.C. 20035

Overnight Mail or Other Delivery:

**Director** (210)  
Attention: Brenda Hudgens-Williams  
BLM Protest Coordinator  
1620 L Street, N.W., Suite 1075  
Washington, D.C. 20036

Before including your address, phone number, e-mail address, or other personal identifying information in your **comment**, you should be aware that your entire comment - including your personal identifying information - may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

Emailed and faxed protests will not be accepted as valid protests unless the protesting **party** also provides the original letter by either regular or overnight mail postmarked by the close of the protest period. Under these conditions, the BLM will consider the emailed or faxed protest as an advance copy and will afford it full consideration. If you wish to provide the BLM with such advance notification, please direct faxed protests to the attention of Brenda Hudgens-Williams - BLM Protest Expeditor at 202-912-7129, and emailed protests to Brenda Hudgens-WilliamS@blm.gov.

The BLM Director will make every attempt to promptly render a decision on each valid protest. The decision will be in writing and will be sent to the protesting **party** by certified mail, return receipt requested. The decision of the BLM Director shall be the final decision of the Department of the Interior. Responses to protest issues will be compiled in a Director's Protest Resolution Report that will be made available to the public following issuance of the decisions.

Upon resolution of aU protests, the BLM may issue a Record of Decision (ROD) adopting the Approved PA and making a decision regarding issuance of the right-of-way grant for the GSEP. Copies of the ROD will be mailed or made available electronically to all who participated in this NEPA process and will be available to all parties through the "Planning" page of the BLM national website (<http://www.blm.gov/plannini>), or by mail upon request.

Sincerely,



John R. Kalish  
Field Manager



*Attachment 1*

**Protest Regulations**

[CITE: 43CFR1610.5-2]

TITLE 43--PUBLIC LANDS: INTERIOR  
CHAPTER II--BUREAU OF LAND MANAGEMENT, DEPARTMENT OF THE INTERIOR  
PART 1600--PLANNING, PROGRAMMING, BUDGETING--Table of Contents  
Subpart 1610--Resource Management Planning  
Sec. 1610.5-2 Protest procedures.

- (a) Any person who participated in the planning process and has an interest which is or may be adversely affected by the approval or amendment of a resource management plan may protest such approval or amendment. A protest may raise only those issues which were submitted for the record during the planning process.
  - (1) The protest shall be in writing and shall be filed with the Director. The protest shall be filed within 30 days of the date the Environmental Protection Agency published the notice of receipt of the final environmental impact statement containing the plan or amendment in the Federal Register. For an amendment not requiring the preparation of an environmental impact statement, the protest shall be filed within 30 days of the publication of the notice of its effective date.
  - (2) The protest shall contain:
    - (i) The name, mailing address, telephone number and interest of the person filing the protest;
    - (ii) A statement of the issue or issues being protested;
    - (iii) A statement of the part or parts of the plan or amendment being protested;
    - (iv) A copy of all documents addressing the issue or issues that were submitted during the planning process by the protesting party or an indication of the date the issue or issues were discussed for the record; and
    - (v) A concise statement explaining why the State Director's decision is believed to be wrong.
  - (3) The Director shall promptly render a decision on the protest.
- (b) The decision shall be in writing and shall set forth the reasons for the decision. The decision shall be sent to the protesting party by certified mail, return receipt requested. The decision of the Director shall be the final decision of the Department of the Interior.

## **Resource Management Plan Protest**

### **Critical Item Checklist**

**The following items *must* be included to constitute a valid protest  
whether using this optional format, or a narrative letter.**

**(43 CFR 1610.5-2)**

BLM's practice is to make comments, including names and home addresses of respondents, available for public review. Before including your address, phone number, e-mail address, or other personal identifying information in your comment, be advised that your entire comment--including your personal identifying information--may be made publicly available at any time. While you can ask us in your comment to withhold from public review your personal identifying information, we cannot guarantee that we will be able to do so. All submissions from organizations and businesses, and from individuals identifying themselves as representatives or officials of organizations and businesses, will be available for public inspection in their entirety.

**Resource Management Plan (RMP) or Amendment (RMPA) being protested:**

**Name:**

**Address:**

**Phone Number: ( )**

**Your interest in filing this protest (how will you be adversely affected by the approval or amendment of this plan?):**

**Issue or issues being protested:**

**Statement of the part or parts of the plan being protested:**

**Attach copies of all documents addressing the issue(s) that were submitted during the planning process by the protesting party, OR an indication of the date the issue(s) were discussed for the record.**

**Date(s):**

**A concise statement explaining why the State Director's decision is believed to be wrong:**

**Palm Springs South Coast Field Office**  
**Genesis Solar Energy Project**  
**Plan Amendment/Final Environmental Impact Statement**

Lead Agency: Bureau of Land Management (BLM)  
Palm Springs / South Coast Field Office (PSSCFO)  
Palm Springs, California

For further information, contact:  
Allison Shaffer, Project Manager PSSCFO -  
1201 Bird Center Drive, Palm Springs, CA 92262

**Abstract**

This Plan Amendment/Final Environmental Impact Statement (PA/FEIS) addresses the possible United States Bureau of Land Management (BLM) approval of an amendment to the *California Desert Conservation Area Plan* (CDCA Plan) to allow for solar energy and of a right-of-way (ROW) grant to lease land managed by the BLM for construction, operation and decommissioning of a solar electricity generation facility. The Agency Preferred Alternative covers approximately 1,746 acres (ac), managed by the BLM, and would generate 250 megawatts (MW) of electricity. The PA/FEIS identifies impacts of the Agency Preferred Alternative, including impacts related to biological resources, cultural resources, land use, visual resources, and hydrology, water quality, and water use. Many of these adverse impacts can be avoided or substantially reduced based on compliance with applicable laws, ordinances, regulations and standards, and compliance with measures provided in this PA/FEIS.

Chapter 2 discusses the Genesis Solar Energy Project (GSEP) (250 MW on approximately 1,746 ac), a 250 MW Dry Cooling Alternative (250 MW on approximately 1,746 ac), a 125 MW Reduced Acreage Alternative (125 MW on approximately 950 ac), the No Action Alternative (No ROW Grant and No CDCA Plan Amendment), the No Project Alternative (No ROW Grant and Amend the CDCA Plan for No Solar), and the No Project Alternative (No ROW Grant and Amend the CDCA Plan for Other Solar). Chapter 3 describes the existing conditions on and in the vicinity of the project site. Chapter 4 describes the potential adverse environmental impacts expected under each of the Alternatives, including the Agency Preferred Alternative.

The Field Manager of the PSSCFO has the authority for site management of future activities related to the ROW grant and is the BLM Authorized Officer for this FEIS.



# **Relationship to the Genesis Solar Energy Project Staff Assessment and Draft Environmental Impact Statement**

In accordance with the National Environmental Policy Act (NEPA), Federal Land Policy and Management Act (FLPMA), and California Environmental Quality Act (CEQA), the Bureau of Land Management (BLM) and the California Energy Commission (CEC) cooperatively prepared a Staff Assessment (SA) and Draft Environmental Impact Statement (DEIS) as a joint environmental analysis (SA/DEIS) to evaluate environmental impacts of the California Desert Conservation Area (CDCA) Plan Amendment applied for by Genesis Solar, for the Genesis Solar Energy Project (GSEP or proposed action).

The SA/DEIS satisfies NEPA, FLPMA and CEQA requirements. However, the format of the SA/DEIS differs from the format typically used for EISs prepared by the BLM. Therefore, this proposed Plan Amendment/Final EIS (PA/FEIS) has been prepared as a stand-alone document to provide the reader with a more familiar EIS format.

During this process, the Applicant provided information to the CEC (including, but not limited to, the Application for Certification, data responses and other related information) that informed best management practices, applicant proposed measures and mitigation measures that were included in the SA/DEIS. For purposes of this NEPA analysis, due to the evolution of such information throughout the environmental review process, measures initially proposed as “applicant proposed measures” are included as Mitigation Measures where applicable rather than as part of the Project Description.

The SA/DEIS provides the basis for the analyses presented in this PA/FEIS. The following table correlates the applicable SA/DEIS chapters to the PA/FEIS chapters provided herein.

**PROPOSED PA/FEIS AND SA/DEIS CORRELATION CHART**

<b>PA/FEIS Chapter</b>	<b>SA/DEIS Chapter</b>
Chapter 1 Introduction	A. Introduction
Chapter 2 Proposed Action and Alternatives	B. Description of the Proposed Project and Alternatives D.1 Facility Design D.3 Power Plant Efficiency D.4 Power Plant Reliability D.5 Transmission System Engineering E. General Conditions
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3.02 Air Resources	C.1 Air Quality
3.03 Global Climate Change	C.1 Air Quality
3.04 Cultural Resources	C.3 Cultural Resources and Native American Values
3.05 Environmental Justice	C.8 Socioeconomic and Environmental Justice
3.06 Lands and Realty	C.6 Land Use, Recreation, and Wilderness
3.07 Livestock and Grazing	Not applicable
3.08 Mineral Resources	D.2 Geology, Paleontology, and Minerals
3.09 Multiple Use Classes	C.6 Land Use, Recreation, and Wilderness
3.10 Noise	C.7 Noise and Vibration
3.11 Paleontological Resources	D.2 Geology, Paleontology, and Minerals
3.12 Public Health Safety	C.4 Hazardous Materials Management C.5 Health and Safety C.11 Transmission Line Safety and Nuisance C.13 Waste Management C.14 Worker Safety and Fire Protection
3.13 Recreation	C.6 Land Use, Recreation, and Wilderness
3.14 Social Economics	C.8 Socioeconomic and Environmental Justice
3.15 Soils Resources	C.9 Soil and Water Resources
3.16 Special Designations	C.6 Land Use, Recreation, and Wilderness
3.17 Transportation and Public Access – OHV	C.10 Traffic and Transportation
3.18 Vegetation Resources	C.2 Biological Resources
3.19 Visual Resources	C.12 Visual Resources
3.20 Water Resources	C.9 Soil and Water Resources
3.21 Wild Horse and Burros	Not applicable
3.22 Wildland and Fire Ecology	C.2 Biological Resources
3.23 Wildlife Resources	C.2 Biological Resources C.14 Worker Safety and Fire Protection
Chapter 4: Environmental Consequence	C. Environmental Analysis
4.01 Introduction	Not applicable
4.02 Impacts on Air Resources	C.1 Air Quality

<b>PA/FEIS Chapter</b>	<b>SA/DEIS Chapter</b>
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# EXECUTIVE SUMMARY

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## ES.1 Background and Organization

In August 2007, the United States Bureau of Land Management (BLM) California Desert District and the California Energy Commission (CEC) entered into a Memorandum of Understanding (MOU) to jointly develop the environmental analysis documentation for solar thermal projects which are under the jurisdiction of both agencies. Consistent with that MOU, the BLM and the CEC prepared a joint environmental compliance document to address the requirements of the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA) for the Genesis Solar Energy Project (GSEP). Specifically, a Staff Assessment/Draft Environmental Impact Statement (SA/DEIS) was prepared and was circulated for agency and public review and comment between April 9, 2010, and July 8, 2010. The SA/DEIS is incorporated by reference in this Plan Amendment/Final Environmental Impact Statement (PA/FEIS).

The BLM and the CEC prepared separate final documents for compliance with NEPA and CEQA, respectively. Specifically, the BLM prepared this PA/FEIS for the GSEP. The SA/DEIS was the primary reference used in preparing this FEIS. The SA/DEIS is incorporated by reference in this FEIS. The comments received on the DEIS are addressed in this PA/FEIS. After the publication of this PA/FEIS, the BLM will prepare a Record of Decision (ROD) regarding the Proposed Action (Agency Preferred Alternative). The publication of the ROD in the Federal Register is the final step required of the BLM to meet the requirements of NEPA for the GSEP.

## ES.2 Lead Agencies' Roles and Approvals

The BLM's authority for the Proposed Action includes the Federal Land Policy and Management Act (FLPMA) of 1976, Section 211 of the Energy Policy Act, and BLM's Solar Energy Development Policy. The FLPMA authorizes the BLM to issue right-of-way (ROW) grants for renewable energy projects. BLM's authority also extends to the BLM lands in the Palm Springs/South Coast Field Office, which are governed by the California Desert Conservation Area Plan (1980, as amended) (CDCA Plan). Because the CDCA Plan would need to be amended to allow the GSEP on the proposed site, BLM would also oversee that CDCA Plan amendment process for the project.

The CEC has the exclusive authority to certify the construction, modification, and operation of thermal electric power plants in California which generate 50 or more MW. The CEC certification is in lieu of any permit required by State, regional, or local agencies. The CEC must review power plant Applications for Certification (AFCs) to assess potential environmental impacts and

compliance with applicable laws, ordinances, regulations, and standards (LORS). The CEC analyses regarding the BSPP in the SA/DEIS were prepared in accordance with the requirements of CEQA.

## **ES.3 Purpose and Need**

### **BLM Purpose and Need**

NEPA guidance published by the Council on Environmental Quality (CEQ) states that environmental impact statements' Purpose and Need section "shall briefly specify the underlying purpose and need to which the agency is responding in proposing the alternatives including the Proposed Action" (40 CFR 1502.13). The following discussion sets forth the purpose of and need for the action as required under NEPA.

The BLM's purpose and need for the GSEP is to respond to Genesis Solar, LLC's application under Title V of FLPMA (43 U.S.C. 1761) for a ROW grant to construct, operate, maintain and decommission a solar thermal facility on public lands in compliance with FLPMA, BLM ROW regulations, and other applicable Federal laws. The BLM will decide whether to approve, approve with modification, or deny issuance of a ROW grant to Genesis Solar, LLC for the proposed GSEP. The BLM's action will also include consideration of amending the California Desert Conservation Area Plan (CDCA) 1980, as amended concurrently. The CDCA, while recognizing the potential compatibility of solar generation facilities on public lands, requires that all sites associated with power generation or transmission not identified in that plan be considered through the land use plan amendment process. If the BLM decides to approve the issuance of a ROW grant, the BLM will also amend the CDCA as required.

In conjunction with FLPMA, BLM authorities include:

1. Executive order 13212, dated May 18, 2001, which mandates that agencies act expediently and in a manner consistent with applicable laws to increase the "production and transmission of energy in a safe and environmentally sound manner."
2. The Energy Policy Act 2005 (EPAAct ), which sets forth the "sense of Congress" that the Secretary of the Interior should seek to have approved non-hydropower renewable energy projects on the public lands with a generation capacity of at least 10,000 MW by 2015.
3. Secretarial Order 3285A1, dated March 11, 2009 and amended on Feb 22, 2010, which "establishes the development of renewable energy as a priority for the Department of the Interior."

### **Department of Energy Purpose and Need**

The Applicant submitted an application to DOE on June 4, 2010 for a Federal loan guarantee for the GSEP in response to a DOE competitive solicitation, "Commercial Technology Renewable Energy Generation Projects Under the Financial Institution Partnership Program." This solicitation was issued under section 1705, Title XVII, of the Energy Policy Act of 2005 (EPAAct). Section 406 of the American Recovery and Reinvestment Act of 2009 (the "Recovery Act")

amended EPAct, adding section 1705, designed to address the current economic conditions of the Nation, in part, through eligible renewable projects to generate electricity, to commence construction no later than September 30, 2011. DOE is carrying out a detailed financial, technical, and legal evaluation of the project in response to that solicitation, and is in the course of negotiating the terms and conditions of a possible federal loan guarantee pursuant to its procedures set out at 10 CFR Part 609. DOE is a cooperating agency on this EIS pursuant to a Memorandum of Agreement between DOE and BLM signed in January 2010, and would use this EIS to meet its NEPA requirements in making a determination of funding.

Title XVII of the Energy Policy Act of 2005 (EPAct), P.L. 109-58 as amended by section 406 of the American Recovery and Reinvestment Act of 2009, P.L. 111-5 (the “Recovery Act”), established a Federal loan guarantee program for eligible energy projects that employ innovative technologies. Title XVII authorizes the Secretary of Energy to make loan guarantees for various types of projects, including those that “avoid, reduce, or sequester air pollutants or anthropogenic emissions of greenhouse gases; and employ new or significantly improved technologies as compared to commercial technologies in service in the United States at the time the guarantee is issued.” Section 406 of the Recovery Act added section 1705, which is designed to address the current economic conditions of the nation, in part, through eligible renewable and transmission projects to commence construction no later than September 30, 2011. The primary purposes of the Recovery Act are job preservation and creation, infrastructure investment, energy efficiency and science, assistance to the unemployed, and state and local fiscal stabilization. The purpose and need for DOE action would be to comply with its mandate by selecting eligible projects that meet the goals of EPAct and the Recovery Act.

## Energy Commission Project Objectives

The CEQA guidelines require a clearly written statement of objectives to guide the lead agency in developing a reasonable range of alternatives and aid decision-makers in preparing findings or a statement of overriding considerations. CEQA specifies that the statement of objectives should include the underlying purpose of the project (Section 15126.6(a)). After considering the objectives set out by the applicant, the Energy Commission identified the following basic project objectives, which are used to evaluate the viability of alternatives in accordance with CEQA:

1. To construct a utility-scale solar energy project of up to 250 MW and interconnect directly to the CAISO Grid while minimizing additions to electrical infrastructure; and
2. To locate the facility in areas of high solar insolation.
3. In addition, when considering retention or elimination of alternative renewable technologies, in addition to evaluating the likelihood of reducing or eliminating the potential impacts of Genesis Solar Energy Project at its proposed site, staff evaluated whether alternative technologies could meet the following key project objectives:
4. To provide clean, renewable electricity and to assist Southern California Edison (SCE) in meeting its obligations under California’s Renewable Portfolio Standard Program (RPS);
5. To assist SCE in reducing its greenhouse gas emissions as required by the California Global Warming Solutions Act; and

6. To contribute to the achievement of the 33% renewables RPS target set by California's governor and legislature
7. To complete the review process in a timeframe that would allow the applicant to start construction or meet the economic performance guidelines by December 31, 2010 to potentially qualify for the 2009 ARRA cash grant in lieu of tax credits for certain renewable energy projects.

## ES.4 Proposed Action and Plan Amendment

Genesis Solar, LLC, (Applicant) proposes to construct, operate, maintain and decommission the GSEP or Proposed Action which includes a 250 MW solar generating facility, 230-kV transmission line (gen-tie) and ancillary facilities (access road and natural gas pipeline) on BLM-administered land, approximately 25 miles west of the city of Blythe and five miles north of the Interstate-10 freeway (see Figure 1-1). The Applicant is seeking a right-of-way (ROW) grant for approximately 4,640 acres. Construction and operation of the GSEP would disturb a total of about 1,808 acres. Remaining acreage that would not be disturbed may not be part of the ROW grant.

The GSEP would include the construction and operation of two adjacent, independent, nearly identical power block units (Units) of 125 MW nominal capacity each for a total nominal capacity of 250 MW commercial solar parabolic trough generating station and ancillary facilities (see Figure 2-1 and Figure 2-2). The GSEP would be constructed in two phases. Each phase is designed to build one Unit to provide a approximately 125 MW of electricity and would occupy an estimated 900 acres. The GSEP would be connected to Southern California Edison's planned Colorado River Substation, which would be located approximately 11 miles southeast of the GSEP area, via the proposed gen-tie line, a 230 kV transmission line.

The Applicant did not request a CDCA Plan amendment directly. Nonetheless, the BLM has determined that a CDCA Plan amendment would be required if a ROW were granted for a solar power generating facility on the proposed site. Regardless of whether the proposed project is approved, the BLM could elect to amend the CDCA Plan. Consequently, the following range of outcomes of the BLM's potential CDCA Plan amendment process is as follows:

**PA1** – The CDCA (1980, as amended) would be amended to approve this site for development of this facility And all other types of solar energy development. (This is the proposed land use plan amendment.)

**PA2** – The CDCA Plan (1980, as amended) would not be amended. (This is No Action Alternative A, discussed in Table ES-1.)

**PA3** – The CDCA Plan (1980, as amended) would be amended to identify the GSEP application area as unsuitable for any type of solar energy development. (This is a no project alternative called "No Action Alternative B" and is discussed in Table ES-1.)

**PA4** – The CDCA Plan (1980, as amended) would be amended to identify the GSEP application area as suitable for any type of solar energy development. (This is a no project alternative called "No Action Alternative C" and is discussed in Table ES-1.)



## **ES.5 Ancillary/Connected/Cumulative Actions**

### **Telecommunications and Telemetry**

Telecommunications services would be provided by a local provider via either fiber optic cable or microwave. Fiber optic cable would be buried in a shallow trench or strung on the power distribution line or gen-tie line, or a combination of both methods within the disturbed areas of the other linear facilities. (See Figure 2-8)

### **Natural Gas Pipeline**

A new eight-inch diameter, 6.5-mile long natural gas pipeline would be constructed to connect the project to an existing Southern California Gas (SCG) pipeline situated south of I-10. The line would be buried with a minimum three feet of cover depending on location.

Construction of the gas pipeline would be built to SCG standards and would take approximately three to six months. Most major pieces of pipeline construction equipment would remain along the pipeline ROW during construction with storage and staging of equipment and supplies located at the site or other acceptable site selected by SCG at the time construction is underway. Excavated earth material would be stored within the construction ROW.

### **Distribution Line**

Construction power would be provided by the local distribution system and routed to the site along wood poles within the 230 kV ROW (see Figure 2-8).

### **Colorado River Substation Expansion**

This Proposed Action involves expanding the already approved, but not yet constructed, 500 kV SCE switchyard by approximately 65 acres into a full 500/220 kV substation on approximately 90 acres of land.

### **Cumulative Scenario**

There are a large number of renewable energy and other projects proposed throughout the California desert that were identified as potentially contributing to cumulative environmental impacts. Those cumulative projects are discussed in detail in Section 4.1.4, Cumulative Scenario Approach.

## **ES.6 Alternatives to the Proposed Action**

Table ES-1 summarizes the GSEP, the Agency Preferred Alternative, as well as the other Alternatives evaluated in this PA/FEIS. The GSEP is the originally Proposed Action. All of these Alternatives are described in detail in Chapter 2, Proposed Action and Alternatives.

**TABLE ES-1  
SUMMARY OF ALTERNATIVES EVALUATED IN THE PA/FEIS**

<b>Alternative</b>	<b>Comments</b>
Proposed Action  250 MW; 1,807 acres disturbed BLM amends CDCA Plan for GSEP	This is the GSEP and was the original Proposed Action.
Dry Cooling Alternative  250 MW; 1,807 acres disturbed BLM amends CDCA Plan for GSEP	This is an alternative that would use dry cooling technology to generate the same energy output using the same footprint, but would reduce water consumption by 87%; it also is the Agency Preferred Alternative.
Reduced Acreage Alternative  125 MW (50 percent of MW of the GSEP); 1,012 acres disturbed (795 acres less than the GSEP) BLM amends CDCA Plan for Reduced Acreage Alternative	This is a reduced project that would develop only one of the two Units proposed under the GSEP. The same solar trough technology would be used as for the GSEP.
No Action Alternative A  BLM does not approve the ROW Grant for the GSEP BLM does not amend the CDCA Plan	This No Action Alternative was evaluated in the SA/DEIS under both CEQA and NEPA.
No Project Alternative B  BLM does not authorize the ROW grant for the GSEP; BLM amends the CDCA Plan to make the project site unavailable for any type of solar energy development.	<p>This No Project Alternative was evaluated in the SA/DEIS under NEPA only.</p> <p>This is not a typical "No Project" Alternative because the BLM would take action to amend the CDCA Plan under this Alternative. However, it was evaluated because it provided an opportunity for the BLM to consider the effects of not approving the ROW grant application and also amending the CDCA Plan to make the specific GSEP site unavailable for future solar development.</p>
No Project Alternative C  BLM does not authorize the ROW grant for the GSEP; BLM amends the CDCA Plan to make the project site available for any type of solar energy development.	<p>This No Project Alternative was evaluated in the SA/DEIS under NEPA only.</p> <p>This is not a typical "No Project" Alternative because the BLM would take action to amend the CDCA Plan under this Alternative. However, it was evaluated because it provided an opportunity for the BLM to consider the effects of not approving the ROW grant application and also amending the CDCA Plan to make the specific GSEP site available for future solar development.</p>

## ES.7 Affected Environment

The GSEP would be located on public land managed by the BLM approximately six miles north of the I-10 freeway and 25 miles west of the City of Blythe, California. The Proposed Action includes a 230-kilovolt (kV) transmission line that would interconnect with the regional grid at Southern California Edison's (SCE) planned Colorado River Substation about 11 miles southeast the plant site. The Applicant has applied for a right-of-way (ROW) grant from BLM for approximately 4,640 acres of flat desert terrain. Within these 4,640 acres, construction and operation would disturb approximately 1,808 acres. Remaining acreage that would not be disturbed would not be part of the ROW grant.

The Genesis Solar Energy Project (GSEP) would be located within the northeastern portion of Chuckwalla Valley, an area east of Palm Springs. The range of the Chuckwalla Valley is from 400 feet above mean sea level at Ford Dry Lake to approximately 1,800 feet above mean sea level along some of the bajadas that occur west of Desert Center, California with the surrounding mountains rising to over 3,000 above mean sea level (GSEP 2009a). Depending on the published reference, the GSEP site is located in either the southeastern portion of the Mojave Desert geomorphic province (CGS 2002a), or the northeastern quarter of the Colorado Desert geomorphic province (Norris and Webb 1990), in the Mojave Desert of Southern California near the Arizona border.

The GSEP area supports four major upland natural communities. The majority of the GSEP Disturbance Area supports Sonoran creosote bush scrub; the eastern portion of the GSEP Disturbance Area also supports stabilized and partially stabilized desert dunes. A small amount of playa and sand drifts over playa occur within the GSEP Disturbance Area along the margins of Ford Dry Lake. The larger surveyed area, the GSEP area, supports chenopod scrub, and desert wash woodland in addition to the two vegetation communities mentioned above (GSEP 2009a). All of these communities except the Sonoran creosote bush scrub are considered sensitive according to the NECO plan. Additionally, the southern linear facility route was determined by the applicant to support wash-associated, microphyll riparian woodland communities (GSEP 2009f, BIO-DR-70). Dry desert wash woodland and microphyllous riparian vegetation are described in detail in the section on Ephemeral Washes/ Waters of the State. A variety of wildlife occupies the habitats on and in the vicinity of the project site.

The GSEP Site lies on a broad, relatively flat, southward sloping surface dominantly underlain by alluvial deposits derived from the Palen Mountains to the north and the McCoy Mountains to the east. The alluvial deposits have created two distinct landform types and several discernable landform ages. The deposits immediately adjacent to the mountains have formed alluvial fans from multiple identifiable sources, and multiple fan surfaces have coalesced into a single bajada surface that wraps around each of these mountain fronts. Between the bajada surfaces from each mountain chain is a broad valley-axial drainage that extends southward between the mountains and drains to the Ford Dry Lake playa, located about 1 mile south of the Site (WPAR 2009a).

## **ES.8 Environmental Consequences**

Table ES-2 summarizes the environmental impacts that would occur as a result of the GSEP and Alternatives by environmental parameter. Appendix G, Conditions of Certification, identify the mitigation measures, project features, and other measures included to avoid or substantially reduce adverse impacts. The unavoidable adverse impacts that would remain after mitigation are also discussed at the end of each section in Chapter 4.

**TABLE ES-2  
SUMMARY OF IMPACTS BY ALTERNATIVE**

Resource	ALTERNATIVES					
	Proposed Action	Dry Cooling Alternative	Reduced Acreage Alternative	No Action Alternative	No Project Alternative B	No Project Alternative C
Air	<ul style="list-style-type: none"> <li><i>Construction:</i> NOx=182 tons/yr; VOC=46 tons/yr; CO=363 tons/yr; PM10=41 tons/yr; PM2.5=16 tons/yr; and Sox=0.47 tons/yr</li> <li><i>Operations:</i> NOx= 3 tons/yr; VOC=16 tons/yr; CO=7 tons/yr; PM10=21 tons/yr; PM2.5=7; tons/yr; and Sox=0.02 tons/yr</li> <li><i>Decommissioning:</i> Comparable in type and magnitude, but likely to be lower than, the construction emissions</li> </ul>	Slightly higher construction emissions; 3.8-tons per year reduction in operational particulate emissions; slightly lower operational emissions.	Similar to the Proposed Action	Likely delayed impact similar to the Proposed Action. Required acreage could be less, approximately the same, or more than the Proposed Action.	No impact, or impact specific to a future use other than solar energy generation.	Short term: no impact Long term: Similar to Proposed Action
Global Climate Change	<ul style="list-style-type: none"> <li><i>Construction:</i> GHG: 52,974 CO<sub>2</sub>-Equivalent and loss in carbon uptake of about 2,584 MT of CO<sub>2</sub> per year due to vegetation removal</li> <li><i>Operations:</i> 4,133 CO<sub>2</sub>-Equivalent</li> <li><i>Decommissioning:</i> Comparable in type and magnitude, but likely to be lower than, the construction emissions</li> </ul>	Slightly reduced from the Proposed Action	Approximately 50% less than the Proposed Action	Likely delayed impact similar to the Proposed Action. Required acreage could be less, approximately the same, or more than the Proposed Action.	No impact, or impact specific to a future use other than solar energy generation.	Similar to the Proposed Action
Cultural	<ul style="list-style-type: none"> <li>27 sites considered to be significant (12 prehistoric and 15 historic)</li> <li>Possibly additional resources yet to be discovered during construction</li> <li>The integrity of setting and integrity of feeling of two potential archaeological/historic landscapes</li> </ul>	Same as Proposed Action	Impacts are reduced to 20 known sites.	Likely delayed impact similar to the Proposed Action. Required acreage could be less, approximately the same, or more than the Proposed Action.	No impact, or impact specific to a future use other than solar energy generation.	Similar to the Proposed Action. Required acreage could be less, approximately the same, or more than the Proposed Action.
Environ-mental Justice	No Impact	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Lands and Realty	<ul style="list-style-type: none"> <li>Minimal and mitigable impacts to designated corridors and Interstate 10 from overhead gen-tie power line and underground pipeline crossing.</li> <li>No impacts to existing uses.</li> </ul>	Similar to the Proposed Action	Similar to the Proposed Action	Likely delayed impact similar to the Proposed Action. Required acreage could be less, approximately the same, or more than the Proposed Action.	No impact, or impact specific to a future use other than solar energy generation.	Similar to the Proposed Action. Required acreage could be less, approximately the same, or more than the Proposed Action.
Livestock Grazing	No Impact	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action

**TABLE ES-2 (Continued)**  
**SUMMARY OF IMPACTS BY ALTERNATIVE**

Resource	ALTERNATIVES					
	Proposed Action	Dry Cooling Alternative	Reduced Acreage Alternative	No Action Alternative	No Project Alternative B	No Project Alternative C
Minerals	No Impact	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Multiple Use Classes	<ul style="list-style-type: none"> <li><i>Construction:</i> 1800 acres of MUC Class M (Moderate) affected.</li> <li><i>Operations:</i> restriction of multiple use opportunities on the site to a single dominant use.</li> </ul>	Same as Proposed Action	Approximately 50% less than the Proposed Action	No Impact; similar impacts if other utility-scale solar power facilities built in future.	No Impact.	Same as Proposed Action.
Noise	<ul style="list-style-type: none"> <li><i>Construction:</i> short-term elevated noise levels at the prisons nine miles from the GSEP site would occur associated with high pressure steam blow.</li> <li><i>Operations:</i> No impact; no sensitive noise receptors within 5 miles; at 5 miles, noise levels would be approximately 30 dBA.</li> </ul>	Similar to the Proposed Action, though slightly reduced.	Similar to the Proposed Action as there are no noise sensitive receptors in the vicinity.	Similar to the Proposed Action	Similar to the Proposed Action	Similar to the Proposed Action
Paleontological	<ul style="list-style-type: none"> <li><i>Construction:</i> Damage and/or destruction of paleontological resources; possible net gain to the science of paleontology depending on fossils found.</li> <li><i>Operations:</i> No Impact.</li> <li><i>Decommissioning:</i> No Impact.</li> </ul>	Same as Proposed Action	Approximately 50% less than the Proposed Action	No negative impact or potential benefits to science of paleontology. Long term impacts likely similar to Proposed Action.	No negative impact or potential benefits to science of paleontology. Impacts similar to the Proposed Action likely to occur in other locations.	Similar but reduced/increased proportionate to size of future development.
Public Health & Safety	<ul style="list-style-type: none"> <li><i>Construction:</i> Risks to public health and contamination associated with construction equipment; safety risk of encountering unexploded munitions; risks of encountering abandoned mined lands.</li> <li><i>Operations:</i> large quantities of natural gas and Therminol VP1 would be used; no short- or long-term adverse human health effects are expected; risks of encountering abandoned mined lands; transmission line safety and nuisance hazards; traffic and transportation safety, including aviation safety; impacts to public and private airfields; and worker safety and fire protection impacts; and impacts associated with geologic hazards.</li> </ul>	Similar to the Proposed Action	Similar to the Proposed Action	Similar to the Proposed Action	Similar to the Proposed Action	Similar to the Proposed Action

**TABLE ES-2 (Continued)**  
**SUMMARY OF IMPACTS BY ALTERNATIVE**

Resource	ALTERNATIVES					
	Proposed Action	Dry Cooling Alternative	Reduced Acreage Alternative	No Action Alternative	No Project Alternative B	No Project Alternative C
Recreation	<ul style="list-style-type: none"> <li>• <i>Construction</i>: impacts from noise, fugitive dust, and truck and other vehicle ingress and egress to the construction site.</li> <li>• <i>Operations</i>: site not available for recreational use; minimal impacts to other lands in the vicinity of the proposed site due to increased usage; site viewable by users in nearby elevated areas.</li> <li>• <i>Decommissioning</i>: dust and noise impacts similar to construction; after decommissioning area would be reclaimed for recreational use.</li> </ul>	Operation, maintenance, and closure similar to Proposed Action.	Approximately 50% less than the Proposed Action	Similar to the Proposed Action.	Potential impacts could range from no impact to greater impact, depending on future site use.	Similar but reduced/increased proportionate to size of future development.
Social & Economics	<ul style="list-style-type: none"> <li>• <i>Construction</i>: Employment of 646 workers (average) and 1,085 workers (peak). Most, if not all, expected to live within two hours of site.</li> <li>• Any temporary lodging demand met by existing housing or lodging. No new housing or motel development induced.</li> <li>• Total direct construction spending benefits of \$165 million on labor and \$14.5 million on materials.</li> <li>• Additional total indirect and induced spending benefits of \$136.8 million and 358 jobs.</li> <li>• <i>Operations</i>: Annual employment of 65 workers of which at least 50% expected to live within two hours of site.</li> <li>• Any in-migration housing demand met by existing housing. No new housing growth induced.</li> <li>• Annual direct spending benefits of \$6 million on labor and \$0.5 million on materials.</li> <li>• Additional total indirect and induced spending benefits of \$3.9 million and 32 jobs.</li> <li>• <i>Decommission</i>: Temporary spending and employment benefit from deconstruction and site restoration work. Subsequent long term adverse impact from lost project jobs and spending.</li> </ul>	Same as Proposed Action	Similar but reduced proportionate to size of alternative	Similar to the Proposed Action	No Impact	Similar to the Proposed Action

**TABLE ES-2 (Continued)**  
**SUMMARY OF IMPACTS BY ALTERNATIVE**

Resource	ALTERNATIVES					
	Proposed Action	Dry Cooling Alternative	Reduced Acreage Alternative	No Action Alternative	No Project Alternative B	No Project Alternative C
Soils	<ul style="list-style-type: none"> <li>• <i>Construction</i>: total earth movement of approximately 1 million cubic yards. Wind erosion generated soil loss of 29.7 tons per acre per year, reduced from 72.88 tons per acre per year without the GSEP. Water erosion generated soil loss of 21.95 tons per acre per year, increased from 1.53 tons per acre per year without the GSEP.</li> <li>• <i>Operations</i>: Wind erosion generated soil loss of 1.25 tons per acre per year, reduced from 72.88 tons per acre per year without the GSEP. Water erosion generated soil loss of 6.93 tons per acre per year, increased from 1.53 tons per acre per year without the GSEP.</li> </ul>	Similar to Proposed Action	<p>Peak construction: same as Proposed Action.</p> <p>Long term construction: less than Proposed Action.</p> <p>Operation: less than Proposed Action. Aeolian erosion and transport would be reduced to near zero. Similarly, the impacts on the Chuckwalla and Palen-McCoy sand corridors or the eastern wash complex would be removed.</p>	No impact; potential for similar impacts in other locations.	No impact; potential for similar impacts in other locations.	Similar to Proposed Action
Special Designations	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact
Transportation and Public Access – Off Highway Vehicle Resources	<ul style="list-style-type: none"> <li>• <i>Construction</i>: temporary disturbance to motorized vehicles on local routes; traffic hazards from construction worker commuting and parking; increased traffic from construction activities; damage to roadways. Temporary closure of up to five OHV routes during construction of linears.</li> <li>• <i>Operations</i>: increased opportunities for vandalism, illegal cross-county use and other disruptive behavior from off-highway vehicles (OHV).</li> <li>• No impact to overall access for wilderness recreation; some impact to sightseeing and day use touring by OHV users.</li> </ul>	Similar to Proposed Action.	Similar to Proposed Action	No impact to OHV routes and values; similar impacts to transportation.	No impact to OHV routes and values; similar impacts to transportation.	Similar impacts as Proposed Action.



**TABLE ES-2 (Continued)**  
**SUMMARY OF IMPACTS BY ALTERNATIVE**

Resource	ALTERNATIVES					
	Proposed Action	Dry Cooling Alternative	Reduced Acreage Alternative	No Action Alternative	No Project Alternative B	No Project Alternative C
Vegetation	1,773 acres vegetation communities lost; 90 acres ephemeral drainages lost; 196.5 acres sand dune habitat lost; 4 special status plant species impacted	Same as the Proposed Action in acreage, though indirect effects on vegetation may be reduced by reduction in groundwater pumping.	1,039 acres vegetation communities lost; 88 acres ephemeral drainages lost; 127.5 acres sand dune habitat lost; 4 special status plant species impacted. Indirect impacts on vegetation from groundwater use reduced by 50%. Eastern sand transport corridor not impacted.	Short term: no impact Long term: Similar to Proposed Action	No Impact	Short term: no impact Long term: Similar to Proposed Action
Visual	<ul style="list-style-type: none"> <li><i>Construction:</i> Mitigable short-term impacts from construction lighting and visible dust plumes; minor to moderate effects from large-scale visual disturbance in the landscape.</li> <li><i>Operations:</i> Short-term adverse and unavoidable impacts from glint and glare. Minor to moderate long-term impacts for ground-level viewers. Long-term adverse and unavoidable impacts in the cumulative scenario for dispersed recreational viewers in surrounding mountains.</li> <li><i>Decommissioning:</i> Mitigable short-term impacts prior to successful restoration.</li> </ul>	Similar to the Proposed Action; but dry cooling alternative would slightly increase the visual contrast of the GSEP from KOP-1.	Similar to the Proposed Action; the visual contrast remains the same for KOP-3, but would be slightly reduced from KOPs 1 and 2, as well as elevated viewpoints.	No Impact	No Impact	Future solar energy development could be expected to affect visual resources to the same degree and extent as referenced in the Proposed Action.
Water	<ul style="list-style-type: none"> <li><i>Construction and Operation:</i> Groundwater extraction of up to 1,368 acre feet per year for 3 years of construction, and 1,644 acre feet per year for operation from the Chuckwalla Valley Groundwater Basin. A fraction of this water could be drawn indirectly from induced flows from the Colorado River.</li> <li>Mitigable alteration of stormwater flows and drainage, including re-routing of existing flowpaths.</li> <li>Mitigable surface water quality effects including use of detention basis, spreading fields, drainage channels, and spill cleanup facilities during operation.</li> </ul>	Similar to the Proposed Action, although the operational use of groundwater is reduced to 218 acre feet per year.	Approximately 50% less than Proposed Action for groundwater consumption, similar to the Proposed Action for all others.	Short term: no impact Long term: Similar to Proposed Action	No Impact	Short term: no impact Long term: Similar to Proposed Action

**TABLE ES-2 (Continued)**  
**SUMMARY OF IMPACTS BY ALTERNATIVE**

Resource	ALTERNATIVES					
	Proposed Action	Dry Cooling Alternative	Reduced Acreage Alternative	No Action Alternative	No Project Alternative B	No Project Alternative C
Water (cont.)	<ul style="list-style-type: none"> <li><i>Decommissioning:</i> Mitigable water quality effects due to use of heavy machinery and re-grading of site to match adjacent topography.</li> </ul>					
Wild Horse & Burros	No Impact	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Wildland Fire Ecology	Increase in threat of wildland fires in area during construction (due to increased vehicle use) and during operation (due to increased likelihood of invasive annual plant spread).	Similar to Proposed Action	Similar to Proposed Action	Short term: no impact Long term: Similar to Proposed Action	No Impact	Short term: no impact Long term: Similar to Proposed Action
Wildlife	<ul style="list-style-type: none"> <li><i>Construction:</i> 1,774 acres wildlife habitat lost; 9 special status wildlife species impacted</li> <li><i>Operations:</i> disruption of migratory patterns; death or injury to individuals from striking powerlines, mirrors, arrays, poles or being struck by vehicles; increased predation.</li> </ul>	Same as the Proposed Action in acreage, though indirect effects on vegetation and related resources for wildlife may be reduced by reduction in groundwater pumping.	<i>Construction:</i> 1,039 acres wildlife habitat lost; 9 special status wildlife species impacted on 50% fewer acres than Proposed Action  <i>Operations:</i> Similar to Proposed Action	Short term: no impact Long term: Similar to Proposed Action	No Impact	Short term: no impact Long term: Similar to Proposed Action

## **ES.9 Areas of Controversy and Issues for Resolution**

Based on input received from agencies, organizations, Native Americans and Tribal Governments, and members of the general public during the scoping for the SA/DEIS and in comments on the SA/DEIS, several areas of controversy related to the GSEP are:

- Opposition to the placement of a large solar project on essentially undisturbed desert land
- Support for locating renewable energy projects in urban or previously-developed areas
- Concern regarding the impacts of this large project on biological and cultural resources
- Concern regarding GHG emissions and climate change
- Concern regarding groundwater use
- Concern regarding the range of alternatives considered

Extensive comments were received during the scoping process for the GSEP. The scoping process and public input received during that process are provided in detail in Appendix C, Results of Scoping.

## **ES.10 Organizations and Persons Consulted**

In addition to the scoping and SA/DEIS public review processes, the BLM has been consulting and coordinating with public agencies who may be requested to take action on the GSEP. Consultation and coordination is summarized below.

### **Native American Consultation and Coordination**

A key part of a cultural resources analysis under NEPA, CEQA and Section 106 of the National Historic Preservation Act of 1966 (NHPA) is to determine which of the cultural resources that a proposed or alternative action may affect are important or historically significant. In accordance with 36 CFR Part 800.14(b), Programmatic Agreements (PAs) are used for the resolution of adverse effects for complex project situations and when effects on historic properties or resources eligible for or listed in the National Register of Historic Places (National Register) cannot be fully determined prior to approval of an undertaking. The BLM is preparing a PA in consultation with the Advisory Council on Historic Preservation (ACHP), the State Historic Preservation Officer (SHPO), the CEC, interested tribes (including tribal governments as part of government-to-government consultation), and other interested parties. The PA will govern the continued identification and evaluation of historic properties (eligible for the National Register) and historical resources (eligible for the California Register of Historic Places), as well as the resolution of any effects that may result from the GSEP. The consultation with the ACHP, SHPO and Native American Tribal Governments for the GSEP is ongoing.

### **United States Fish and Wildlife Service**

The BLM permit, consultation, and conferencing with the United States Fish and Wildlife Service (USFWS) required for the GSEP is to comply with the Federal Endangered Species Act (ESA)

for potential take of the Desert tortoise (*Gopherus agassizii*). Because Federal agency action has been identified for the GSEP project, ESA Section 7 consultation/conferencing between the BLM and USFWS is required prior to any take authorization for the GSEP from the USFWS. The BLM has submitted a Biological Assessment (BA) for take of this species to the USFWS for the GSEP. The process of consultation with USFWS for the GSEP is ongoing.

## **California Department of Fish and Game**

Consultation with the California Department of Fish and Game (CDFG) is anticipated for possible impacts to waters of the State. It is possible CDFG will determine that a Lake and Streambed Alteration Agreement may be required for the GSEP for the impacts to jurisdictional State waters. The process of consultation with CDFG for the GSEP is ongoing.

## **ES.11 Public Participation**

Scoping activities were conducted by the BLM in compliance with the requirements of NEPA for the GSEP. Many of these scoping activities were conducted jointly with the CEC. The BLM's scoping activities are described in detail in the Results of Scoping, which is provided in Appendix C. The scoping report documents the Notice of Intent, the scoping meetings, workshops, and the comments received during scoping.

## **ES.12 Comments and Responses**

The BLM and CEC distributed the joint SA/DEIS for the GSEP for public and agency review and comment between April 9, 2010, and July 8, 2010. Fourteen comment letters were received. PA/FEIS Appendix H includes all of the written comment letters received by the BLM in response to the NOA. Section 5.5, Public Comment Process, provides responses to common and individual comments.

# CHAPTER 1

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## Introduction and Purpose and Need

The Staff Assessment /Draft Environmental Impact Statement (SA/DEIS) was a joint document published by the California Energy Commission (CEC) and the Bureau of Land Management (BLM), U.S. Department of Interior. On April 7, 2010 both the CEC and BLM determined that they would develop and publish separate final documents. The BLM's document is called the Proposed Land Use Plan Amendment/Final Environmental Impact Statement (PA/FEIS).

Although BLM and the CEC are no longer publishing a joint document, the CEC and BLM continue to share staff expertise, information and documentation in order to promote intergovernmental coordination at the local, state, and federal levels.

This PA/FEIS analyzes the impacts of the Genesis Solar, LLC, (Applicant) Genesis Solar Energy Plant (GSEP) (formerly known as NextEra Ford Dry Lake Solar Power Plant).<sup>1</sup> The application for this project was filed with BLM as an Application for a Right-of-Way (ROW) Grant on public land (CACA 048810). Subsequent applications for a transmission line/access road (CACA 51198) and a natural gas pipeline (CACA 51203) have been filed. The Regional Context is shown in Figure 2-4 (See Appendix A for all figure references in the PA/FEIS) the Proposed Site Layout and Solar Unit Detail is shown in Figures 2-2, 2-6 and 2-7. This PA/FEIS presents the potential effects of the GSEP and five alternatives on BLM-administered and other affected lands and resources. In this analysis, 26 alternatives to the proposed GSEP were developed and evaluated. These include six alternative sites, solar and renewable technologies, generation technologies using different fuels, and conservation/demand-side management<sup>2</sup>. Of the 26 alternatives, two action alternatives were determined to be potentially feasible by the BLM: a Reduced Acreage Alternative that would generate half the power of the Proposed Action (i.e., 125 MW), and the Dry Cooling Alternative that is the Proposed Action modified to utilize dry cooling. Additionally, a no action alternative and two plan amendment-only alternatives (no project) were also analyzed.

A Notice of Availability (NOA) of this Proposed PA/FEIS to be published by the Environmental Protection Agency in the *Federal Register* will initiate a 30-day protest period on the Proposed PA. All protests on the Proposed PA must be filed with the Director of the BLM. Following resolution of any protests a Record of Decision (ROD) with respect to the Plan Amendment and the Project Application will be issued.

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<sup>1</sup> Genesis Solar, LLC is a wholly-owned subsidiary of NextEra Energy Resources, LLC.

<sup>2</sup> A variety of different technologies were considered and are described in detail in Section 2.6. They included different solar power technologies that have reduced water consumption, linear fresnel technology, wind energy, geothermal energy, biomass energy, tidal energy, wave energy, natural gas, coal, and nuclear energy.

## 1.1 Purpose and Need

### 1.1.1 BLM Purpose and Need

NEPA guidance published by the Council on Environmental Quality (CEQ) states that environmental impact statements' Purpose and Need section "shall briefly specify the underlying purpose and need to which the agency is responding in proposing the alternatives including the proposed action" (40 CFR §1502.13). The following discussion sets forth the purpose of and need for the action as required under NEPA.

The BLM's purpose and need for the GSEP is to respond to Genesis Solar, LLC's application under Title V of FLPMA (43 U.S.C. 1761) for a ROW grant to construct, operate, maintain and decommission a solar thermal facility on public lands in compliance with FLPMA, BLM ROW regulations, and other applicable Federal laws. The BLM will decide whether to approve, approve with modification, or deny issuance of a ROW grant to Genesis Solar, LLC for the proposed GSEP. The BLM's action will also include consideration of amending the California Desert Conservation Area Plan (CDCA) 1980, as amended concurrently. The CDCA, while recognizing the potential compatibility of solar generation facilities on public lands, requires that all sites associated with power generation or transmission not identified in that plan be considered through the land use plan amendment process. If the BLM decides to approve the issuance of a ROW grant, the BLM will also amend the CDCA as required.

In conjunction with FLPMA, BLM authorities include:

1. Executive order 13212, dated May 18, 2001, which mandates that agencies act expediently and in a manner consistent with applicable laws to increase the "production and transmission of energy in a safe and environmentally sound manner."
2. The Energy Policy Act 2005 (EPAAct ), which sets forth the "sense of Congress" that the Secretary of the Interior should seek to have approved non-hydropower renewable energy projects on the public lands with a generation capacity of at least 10,000 MW by 2015.
3. Secretarial Order 3285A1, dated March 11, 2009 and amended on Feb 22, 2010, which "establishes the development of renewable energy as a priority for the Department of the Interior."

### 1.1.2 DOE Purpose and Need

Title XVII of the Energy Policy Act of 2005 (EPAAct), P.L. 109-58 as amended by section 406 of the American Recovery and Reinvestment Act of 2009, P.L. 111-5 (the "Recovery Act"), established a Federal loan guarantee program for eligible energy projects that employ innovative technologies. Title XVII authorizes the Secretary of Energy to make loan guarantees for various types of projects, including those that "avoid, reduce, or sequester air pollutants or anthropogenic emissions of greenhouse gases; and employ new or significantly improved technologies as compared to commercial technologies in service in the United States at the time the guarantee is issued." Section 406 of the Recovery Act added section 1705, which is designed to address the current economic conditions of the nation, in part, through eligible renewable and transmission

projects to commence construction no later than September 30, 2011. The primary purposes of the Recovery Act are job preservation and creation, infrastructure investment, energy efficiency and science, assistance to the unemployed, and state and local fiscal stabilization. The purpose and need for DOE action would be to comply with its mandate by selecting eligible projects that meet the goals of EPCA and the Recovery Act.

Pursuant to provisions of section 1705, on October 7, 2009, DOE competitively solicited applications for a requirement titled, “Commercial Technology Renewable Energy Generation Projects Under the Financial Institution Partnership Program.” In response to that solicitation, the Applicant submitted an application to DOE on June 4, 2010, for a Federal loan guarantee for the GSEP. DOE is carrying out a detailed financial, technical, and legal evaluation of the project submitted by the loan applicant, and is in the course of negotiating the terms and conditions of a possible Federal loan guarantee pursuant to its procedures set out at 10 CFR Part 609. DOE is a cooperating agency on this EIS pursuant to a Memorandum of Agreement between DOE and BLM signed in January 2010, and would use this EIS to meet its NEPA requirements in making a determination of funding.

## **1.2 General Location and Map**

The proposed GSEP is a concentrated solar thermal electric generating facility with two adjacent, independent, and identical units of 125 megawatt (MW) nominal capacity each for a total nominal capacity of 250 MW. The GSEP would be located approximately 17 miles east of the unincorporated community of Desert Center and 25 miles west of the Arizona-California border city of Blythe in Riverside County, California (see Figure 1-1).

As reflected in the applications filed with BLM(CACA 48880 for ROW, CACA 51198 for transmission/access, and CACA 51203 for a natural gas pipeline), the GSEP would be located entirely on BLM-administered land, in Township 6 South, Ranges 18 and 19 East, San Bernardino Meridian, in the Chuckwalla Valley in Riverside County, California. The applicant is seeking a ROW grant for approximately 4,640 acres. The GSEP would consist of the onsite solar generating fields and ancillary facilities (approximately 1,800 acres), and offsite ancillary facilities including a 230 kV transmission line, access road and drainage features (approximately 90 acres). Remaining acreage that would not be disturbed would not be part of the ROW, should the GSEP be approved and a grant issued.

## **1.3 Major Authorizing Laws and Regulations**

The primary agency-specific authorizing laws and regulations are summarized as follows:

### **1.3.1 BLM**

The BLM’s authority and policy guidance for making a decision related to the Proposed Action flows from the Federal Land Policy and Management Act (FLPMA) of 1976 [43 United States Code (U.S.C.) 1701 et seq.], Section 211 of the EPCA (119 Stat. 594, 600), and BLM’s Solar

Energy Development Policy of April 4, 2007. FLPMA authorizes BLM to issue ROW grants for systems for generation, transmission, and distribution of electric energy. Section 211 of the Energy Policy Act of 2005 states that the Secretary of the Interior should seek to have approved a minimum of 10,000 megawatts of renewable energy generating capacity on public lands by 2015.

### **1.3.2 California Energy Commission**

The CEC has the exclusive authority to certify the construction, modification, and operation of thermal electric power plants 50 megawatts (MW) or larger. The CEC certification is in lieu of any permit required by state, regional, or local agencies and by federal agencies to the extent permitted by federal law (Pub. Resources Code, Section 25500). The CEC must review the power plant Application for Certification (AFC) to assess potential environmental impacts including potential impacts to public health and safety, potential measures to mitigate those impacts (Pub. Resources Code, Section 25519), and compliance with applicable governmental laws or standards (Pub. Resources Code, Section 25523 (d)). The CEC staff's analyses are prepared in accordance with Public Resources Code, Section 25500 et seq.; Title 20, California Code of Regulations, Section 1701 et seq.; and CEQA (Pub. Resources Code, Section 21000 et seq.).

### **1.3.3 U.S. Fish and Wildlife Service**

The U.S. Fish and Wildlife Service (USFWS) has jurisdiction to protect threatened and endangered species under the Endangered Species Act (ESA) [16 U.S.C. Section 1531 et seq.]. Formal consultation with the USFWS under Section 7 of the ESA is required for any federal action that may adversely affect a federally-listed species. This consultation will be initiated through a request by the BLM to initiate formal consultation and the submittal of a Biological Assessment (BA).

### **1.3.4 California Department of Fish and Game**

The California Department of Fish and Game (CDFG) has the authority to protect water resources of the state through regulation of modifications to streambeds, under Section 1602 of the Fish and Game Code. The CEC, BLM, and the applicant have provided information to CDFG to assist in its determination of the impacts to streambeds, and identification of permit and mitigation requirements. The applicant filed a Streambed Alteration Agreement with CDFG. The requirements of the Streambed Alteration Agreement will be included as a recommended mitigation measure.

CDFG also has the authority to regulate potential impacts to species that are protected under the California Endangered Species Act (CESA). When appropriate, the applicant will be required to file an Incidental Take Permit application with CDFG. The requirements of the Incidental Take Permit will be included as a recommended mitigation.



### 1.3.5 U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers (USACE) has jurisdiction to protect water quality and wetland resources under Section 404 of the Clean Water Act. Under that authority, USACE reviews proposed projects to determine whether they may impact such resources, or are subject to a Section 404 permit. Throughout the PA/FEIS process, the BLM has provided information to the USACE to assist them in making a determination regarding their jurisdiction and need for a Section 404 permit. The USACE has determined that the project would be in closed basins and thus not regulated per Section 404.

## 1.4 Relationship of Proposed Action to BLM Policies, Plans, and Programs, and Land Use Plan Conformance Determination

The land use plan for the proposed project area is the CDCA of 1980, as amended. In the CDCA, the location of the proposed GSEP facility includes land that is classified as Multiple-Use Class M (Moderate Use). The Plan states that solar power facilities may be allowed within Moderate Use areas after NEPA requirements are met. This PA/FEIS will act as the mechanism for complying with those NEPA requirements. Because solar power facilities are an allowable use of the land as classified in the CDCA Plan, the Proposed Action does not conflict with the CDCA. However, Chapter 3, “Energy Production and Utility Corridors Element” of the CDCA also requires that newly proposed power facilities that are not already identified in the CDCA be considered through the Plan Amendment process. The proposed GSEP facility is not currently identified within the CDCA, and therefore a Plan Amendment is required to include the facility as a recognized element within the CDCA.

### 1.4.1 Planning Criteria (BLM)

The CDCA planning criteria are the constraints and ground rules that guide and direct the development of the Plan Amendment. They ensure that the Plan Amendment is tailored to the identified issues and ensure that unnecessary data collection and analyses are avoided. They focus on the decisions to be made in the Plan Amendment, and will achieve the following:

“Sites associated with power generation or transmission not identified in the Plan will be considered through the Plan Amendment process.”

Because the proposed facility is not currently identified within the CDCA, an amendment to identify the proposed facility within the CDCA is hereby proposed. As specified in the CDCA Chapter 7, Plan Amendment Process, there are three categories of Plan Amendments, including:

**Category 1**, for proposed changes that will not result in significant environmental impact or analysis through an EIS;

**Category 2**, for proposed changes that would require a significant change in the location or extent of a multiple-use class designation; and

**Category 3**, to accommodate a request for a specific use or activity that will require analysis beyond the Plan Amendment Decision.

Based on these criteria, approval of the proposed project would require a Category 3 amendment. This section summarizes the procedures necessary to evaluate the proposed Plan Amendment, as well as the procedures required to perform the environmental review of the ROW application.

## 1.4.2 Statement of Plan Amendment

The Implementation section of the Energy Production and Utility Corridors Element of the CDCA lists a number of Category 3 amendments that have been approved since adoption of the CDCA in 1980. An additional amendment is proposed to be added to this section of the CDCA, and would read “Permission granted to construct solar energy facility (proposed GSEP Project).”

### Plan Amendment Process

The Plan Amendment process is outlined in Chapter 7 of the CDCA. In analyzing an applicant’s request for amending or changing the plan, the BLM District Manager, Desert District, will:

1. Determine if the request has been properly submitted and if any law or regulation prohibits granting the requested amendment.
2. Determine if alternative locations within the CDCA are available which would meet the applicant’s needs without requiring a change in the plan’s classification, or an amendment to any plan element.
3. Determine the environmental effects of granting and/or implementing the applicant’s request.
4. Consider the economic and social impacts of granting and/or implementing the applicant’s request.
5. Provide opportunities for and consideration of public comment on the proposed amendment, including input from the public and from federal, State, and local government agencies.
6. Evaluate the effect of the proposed amendment on BLM management’s desert-wide obligation to achieve and maintain a balance between resource use and resource protection.

### Decision Criteria for Evaluation of Proposed Plan Amendment

The Decision Criteria to be used for approval or disapproval of the proposed plan amendment require that the following determinations be made by the BLM Desert District Manager:

1. The proposed plan amendment is in accordance with applicable laws and regulations; and
2. The proposed plan amendment will provide for the immediate and future management, use, development, and protection of the public lands within the CDCA.

The BLM Desert District Manager will base the rationale for these determinations on the principles of multiple use, sustained yield, and maintenance of environmental quality as required in FLPMA.

## Decision Criteria for Evaluation of Application

In addition to defining the required analyses and Decision Criteria for Plan Amendments, the Plan also defines the Decision Criteria to be used to evaluate future applications in the Energy Production and Utility Corridors Element of Chapter 3. These Decision Criteria include:

1. Minimize the number of separate rights-of-way by utilizing existing rights-of-way as a basis for planning corridors;
2. Encourage joint-use of corridors for transmission lines, canals, pipelines, and cables;
3. Provide alternative corridors to be considered during processing of applications;
4. Avoid sensitive resources wherever possible;
5. Conform to local plans whenever possible;
6. Consider wilderness values and be consistent with final wilderness recommendations;
7. Complete the delivery systems network;
8. Consider ongoing projects for which decisions have been made; and
9. Consider corridor networks which take into account power needs and alternative fuel resources.

## 1.5 General Laws, Ordinances, Regulations and Standards (LORS)

**TABLE 1-1  
GENERAL LAWS, ORDINANCES, REGULATIONS AND STANDARDS**

Applicable LORS	Description
<b>GENERAL</b>	
<b>Federal</b>	
Federal Land Policy and Management Act of 1976 (FLPMA) (43 United States Code [USC] Section 1701, 1761; 43 Code of Federal Regulations [CFR] parts 1600 and 2800.	Establishes public land policy; guidelines for administration; and provides for the management, protection, development, and enhancement of public lands. In particular, the FLPMA's relevance to the proposed project is that Title V, Section 501, establishes BLM's authority to grant rights-of-way for generation, transmission, and distribution of electrical energy (FLPMA 2001).
Bureau of Land Management – California Desert Conservation Area (CDCA) Plan, 1980 as Amended	<p>The 25 million-acre CDCA contains over 12 million acres of public lands spread within the area known as the California Desert, which includes the following three deserts: the Mojave, the Sonoran, and a small portion of the Great Basin. The 12 million acres of public lands administered by the BLM are half of the CDCA.</p> <p>The CDCA Plan is a comprehensive, long-range plan with goals and specific actions for the management, use, development, and protection of the resources and public lands within the CDCA, and it is based on the concepts of multiple use, sustained yield, and maintenance of environmental quality. The plan's goals and actions for each resource are established in its 12 elements. Each element provides both a desert-wide perspective of the planning decisions for one major resource or issue of public concern and a more specific interpretation of multiple-use class guidelines for a given resource and its associated activities.</p>
Northern and Eastern Colorado Desert (NECO) Coordinated Management Plan	The NECO plan is a landscape-scale planning effort for most of the California portion of the Sonoran Desert ecosystem. The planning area encompasses over five million acres. The NECO Plan amended the CDCA plan in 2002 and is currently undergoing evaluation for further amendment. The CDCA Plan/NECO is

**TABLE 1-1 (Continued)**  
**GENERAL LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)**

<b>Applicable LORS</b>	<b>Description</b>
<b>GENERAL (cont.)</b>	
<b>Federal (cont.)</b>	
	related to the Draft Solar Energy Programmatic Environmental Impact Statement which is expected to be issued in 2011 and could give guidance as to how and where solar projects can be built on BLM lands.
Wild and Free-Roaming Horse and Burro Act (1971) (BLM 2009h)	The BLM protects, manages, and controls wild horses and burros under the authority of the Wild Free-Roaming Horses and Burros Act of 1971 (Act) to ensure that healthy herds thrive on healthy rangelands. The BLM manages these animals as part of its multiple-use mission under the 1976 Federal Land Policy and Management Act. One of the BLM's key responsibilities under the Act is to determine the "appropriate management level" (AML) of wild horses and burros on the public rangelands.
<b>State</b>	
California Environmental Quality Act (CEQA) (PRC Section 21000 et seq.); CEQA Guidelines (14 CCR Section 15000 et seq., Appendix G)	Requires public agencies in California to consider adverse direct, indirect and cumulative impacts on the environment before carrying out, authorizing or approving projects that could have such impacts, and to avoid or reduce significant environmental impacts when it is feasible to do so.
<b>Local</b>	
Riverside County General Plan and Vision	The Land Use Element designates the general distribution, location, and extent of land uses, such as housing, business, industry, open space, agriculture, natural resources, recreation, and public/quasi-public uses.
Land Use Element	The Land Use designation of the project area is "Open Space Rural."
Open Space-Rural Policies:	The Open Space Rural land use designation is applied to remote privately owned open space areas with limited access and a lack of public services.
LU 20.1	Require that structures be designed to maintain the environmental character in which they are located.
LU 20.4	Ensure that development does not adversely impact the open space and rural character of the surrounding area
Land Use Designation	The project area is designated rural desert.
Multipurpose Open Space- LU Policies LU.20.1 and 20.4 noted above would also apply	Require that structures be designed to maintain the environmental character in which they are located. Ensure that development does not adversely impact the open space and rural character of the surrounding area
Riverside County Land Use Ordinance	Assigns zones to land within unincorporated areas in the County, describes land uses allowed in each zone, and generally includes direction for implementing the County General Plan.
Riverside County Airport Land Use Compatibility Plan	The Riverside County Airport Land Use Commission (RCALUC) reviews major land use projects within the Airport Influence Area to determine if they are consistent with the Compatibility Plan adopted by the RCALUC for the airports environs.
<b>AIR QUALITY</b>	
<b>Federal</b>	
40 CFR Part 52	<p>Nonattainment New Source Review (NSR) requires a permit, Best Available Control Technology (BACT) and Offsets. Permitting and enforcement is delegated to the Mojave Desert Air Quality Management District (MDAQMD).</p> <p>Prevention of Significant Deterioration (PSD) requires major sources or major modifications to major sources to obtain permits for attainment pollutants. The GSEP is a new source that does not have a rule listed emission source; thus, the PSD trigger levels are 250 tons per year for NOx, VOC, SOx, PM10, PM2.5 and CO.</p>

**TABLE 1-1 (Continued)**  
**GENERAL LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)**

<b>Applicable LORS</b>	<b>Description</b>
<b>AIR QUALITY (cont.)</b>	
<b>Federal (cont.)</b>	
40 CFR Part 60	New Source Performance Standards (NSPS), Subpart Dc Standards of Performance for Small Industrial-Commercial-Institutional Steam Generation Units. Establishes recordkeeping and reporting requirements for natural gas-fired steam-generating units.  Subpart IIII Standards of Performance for Stationary Compression Ignition Internal Combustion Engines. Establishes emission standards for compression-ignition internal combustion engines, including emergency generator and fire water pump engines.
40 CFR Part 93	General Conformity requires a determination of conformity with the State Implementation Plan for a project that requires a Federal approval if the project's annual emissions are above specified levels.
<b>State</b>	
California Health and Safety Code (HSC) Sections 40910-40930	Permitting of source needs to be consistent with Air Resource Board (ARB) approved Clean Air Plans.
HSC Section 41700	Restricts emissions that would cause nuisance or injury.
Title 17 California Code of Regulations (CCR) Section 93115	Airborne Toxic Control Measure for Stationary Compression Ignition Engines limits the types of fuels allowed, establishes maximum emission rates, and establishes recordkeeping requirements on stationary compression ignition engines, including emergency generator and fire water pump engines.
<b>Local (Mojave Desert Air Quality Management District, MDAQMD)</b>	
Rule 201 and 203 Permits Required	Requires a Permit to Construct before construction of an emission source occurs. Prohibits operation of any equipment that emits or controls an air pollutant (such as XX) without first obtaining a permit to operate.
Rules 401, 402, and 403 Nuisance, Visible Emissions, Fugitive Dust	Limits visible, nuisance, and fugitive dust emissions and would be applicable to the construction period of the project.
Rule 404 Particulate Matter - Concentration	Limits the particulate matter concentration from stationary source exhausts.
Rule 406 Specific Contaminants	Prohibits sulfur compound emissions in excess of 500 ppmv.
Rule 407 Liquid and Gaseous Air Contaminants	Prohibits carbon monoxide emissions in excess of 2,000 ppmv.
Rule 409 Combustion Contaminants	Limits the emissions from fossil fuel combustion.
Rule 431 Sulfur Content of Fuels	Limits the sulfur content of liquid fuels to no more than 0.5% by weight.
Rule 900 Standard of Performance for New Stationary Source	Incorporates the Federal NSPS (40 CFR 60) rules by reference.
Rule 1303 New Source Review	Specifies BACT/Offsets technology and requirements for a new emissions unit that has potential to emit any regulated pollutants.
Rule 1306 Electric Energy Generating Facilities	Describes actions to be taken for permitting of power plants that are within the jurisdiction of the CEC.
<b>BIOLOGICAL RESOURCES</b>	
<b>Federal</b>	
Federal Endangered Species Act (16 USC 1531 et seq.; 50 CFR Parts 17 and 402)	Designates and protects Federally threatened and endangered plants and animals and designated critical habitats.

**TABLE 1-1 (Continued)**  
**GENERAL LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)**

Applicable LORS	Description
<b>BIOLOGICAL RESOURCES (cont.)</b>	
<b>Federal (cont.)</b>	
Clean Water Act (33 USC Sections 1251-1376; 40 CFR Section 330.5(a)(26))	Requires the permitting and monitoring of all discharges to surface water bodies. Section 404 requires a permit from the U.S. Army Corps of Engineers (USACE) for a discharge of dredged or fill materials into waters of the U.S., including wetlands. Section 401 requires that an applicant for a Federal license or permit to conduct an activity that could result in a discharge to waters of the United States must provide the Federal agency with a certification from the applicable regional water quality control board (RWQCB) that any such discharge will comply with the Clean Water Act, including state and Federal water quality standards.
Eagle Act (50 CFR Section 22.26)	Would authorize limited take of bald eagles ( <i>Haliaeetus leucocephalus</i> ) and golden eagles ( <i>Aquila chrysaetos</i> ) under the Eagle Act, where the take is compatible with the preservation of the bald and golden eagle; necessary to protect an interest in a particular locality; associated with but not the purpose of the activity; and (1) for individual instances of take, the take cannot practicably be avoided; or (2) for programmatic take, the take is unavoidable even though advanced conservation practices are being implemented
Eagle Act (50 CFR Section 22.27)	Would provide for the intentional removal or relocation of eagle nests where (i) necessary to alleviate a safety emergency; (ii) necessary to ensure public health and safety; (iii) the nest prevents the use of a human-engineered structure, or; (iv) the activity, or mitigation for the activity, will provide a clear and substantial benefit to eagles. Only inactive nests would be allowed to be removed or relocated except in the case of safety emergencies.
Bald and Golden Eagle Protection Act (16 USC Section 668)	Protects bald eagles and golden eagles by prohibiting, except under certain specified conditions, the take, possession, and commerce of such birds. The 1972 amendments increased penalties for violating provisions of the Act or regulations issued pursuant thereto and strengthened other enforcement measures. Rewards are provided for information leading to arrest and conviction for violation of the Act.
Northern and Eastern Colorado Desert Coordinated Management Plan (NECO)	A regional amendment to the CDCA Plan approved in 2002, NECO protects and conserves natural resources while simultaneously balancing human uses in the northern and eastern portion of the Colorado Desert.
California Desert Protection Act of 1994 (CDPA)	An Act of Congress which established 69 wilderness areas, the Mojave National Preserve, expanded Joshua Tree and Death Valley National Monuments and redefined them as National Parks. Lands transferred to the National Park Service were formerly administered by the BLM and included substantial portions of grazing allotments, wild horse and burro Herd Management Areas, and Herd Areas.
Migratory Bird Treaty (16 USC Sections 703-711)	Makes it unlawful to take or possess any migratory nongame bird (or any part of such migratory nongame bird) as designated in the Migratory Bird Treaty Act.
Executive Order 11312	Prevents and controls invasive species.
Wild Free-Roaming Horse and Burro Act (Public Law 92-195)	Protects wild horses and burros from capture, branding, harassment, and death, and manages them with the intent to achieve and preserve the natural ecological balance on public lands.
California Desert Conservation Area Plan	The California Desert Conservation Area (CDCA) comprises one of two national conservation areas established by Congress at the time of the passage of the Federal Land Policy and Management Act (FLPMA), which outlines how the BLM will manage public lands. Congress specifically provided guidance for the management of the CDCA and directed the development of the 1980 CDCA Plan.
Desert Tortoise (Mojave Population) Recovery Plan (USFWS 1994) and Draft Revised Recovery Plan (USFWS 2008a)	Describes a strategy for recovery and delisting of the desert tortoise.

**TABLE 1-1 (Continued)**  
**GENERAL LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)**

<b>Applicable LORS</b>	<b>Description</b>
<b>BIOLOGICAL RESOURCES (cont.)</b>	
<b>State</b>	
California Endangered Species Act of 1984 (Fish and Game Code Sections 2050-2098)	Protects California's rare, threatened, and endangered species.
Protected furbearing mammals (14 CCR Section 460)	Prohibits the take at any time of fisher, marten, river otter, desert kit fox and red fox.
14 CCR Sections 670.2 and 670.5	Lists the plants and animals of California that are declared rare, threatened, or endangered.
Fully Protected Species (Fish and Game Code Sections 3511, 4700, 5050, and 5515)	Designates certain species as fully-protected and prohibits the take of such species or their habitat unless for scientific purposes (see also California Code of Regulations Title 14, section 670.7).
Nest or Eggs (Fish and Game Code Section 3503)	Protects California's birds by making it unlawful to take, possess, or needlessly destroy the nest or eggs of any bird.
Birds of Prey (Fish and Game Code Section 3503.5)	Protects birds of prey by making it unlawful to take, possess, or destroy any birds in the orders Falconiformes and Strigiformes or to take, possess, or destroy the nest or eggs of any such bird.
Migratory Birds (Fish and Game Code Section 3513)	Protects California's migratory birds by making it unlawful to take or possess any migratory nongame bird as designated in the Migratory Bird Treaty Act or any part of such migratory nongame birds.
Nongame mammals (Fish and Game Code Section 4150)	Makes it unlawful to take or possess any non-game mammal or parts thereof except as provided in the Fish and Game Code or in accordance with regulations adopted by the Fish and Game Commission.
Significant Natural Areas (Fish and Game Code Section 1930 et seq.)	Designates certain areas such as refuges, natural sloughs, riparian areas, and vernal pools as significant wildlife habitat.
California Environmental Quality Act (CEQA) (California Public Resources Code Section 21000 et seq.); CEQA Guidelines (14 CCR Section 15380)	CEQA defines rare species more broadly than the definitions for species listed under the state and Federal Endangered Species Acts.  Under CEQA Guidelines Section 15830, species not protected through state or Federal listing but nonetheless demonstrable as "endangered" or "rare" under CEQA should also receive consideration in environmental analyses. Included in this category are many plants considered rare by the California Native Plant Society (CNPS) and some animals on the CDFG's Special Animals List.
Streambed Alteration Agreement (Fish and Game Code Section 1600 et seq.)	Regulates activities that may divert, obstruct, or change the natural flow or the bed, channel, or bank of any river, stream, or lake in California designated by CDFG in which there is at any time an existing fish or wildlife resource or from which these resources derive benefit. Impacts to vegetation and wildlife resulting from disturbances to waterways are also reviewed and regulated during the permitting process.
California Native Plant Protection Act of 1977 (Fish and Game Code Section 1900 et seq.)	Designates state rare, threatened, and endangered plants.
California Desert Native Plants Act of 1981 (Food and Agricultural Code Section 80001 et seq.; California Fish and Game Code Sections 1925-1926)	Protects non-listed California desert native plants from unlawful harvesting on both public and private lands in Imperial, Inyo, Kern, Los Angeles, Mono, Riverside, San Bernardino, and San Diego counties. Unless issued a valid permit, wood receipt, tag, and seal by the commissioner or sheriff, harvesting, transporting, selling, or possessing specific desert plants is prohibited.
Porter-Cologne Water Quality Control Act (California Water Code Section 13000 et seq.)	Regulates discharges of waste and fill material to waters of the State, including "isolated" waters and wetlands.
<b>Local</b>	
Riverside County General Plan	Protection and preservation of wildlife for the maintenance of the balance of nature.

**TABLE 1-1 (Continued)**  
**GENERAL LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)**

<b>Applicable LORS</b>	<b>Description</b>
<b>CULTURAL RESOURCES</b>	
<b>Federal</b>	
Antiquities Act of 1906 16 USC Sections 431–433	Establishes criminal penalties for unauthorized destruction or appropriation of “any historic or prehistoric ruin or monument, or any object of antiquity” on Federal land; empowers the President to establish historical monuments and landmarks.
Archaeological Resources Protection Act of 1979 (ARPA) 16 USC 470aa et seq.	Protects archaeological resources from vandalism and unauthorized collection on public and Indian lands.
National Historic Preservation Act of 1966 (NHPA) 16 USC Section 470	Directs Federal agencies to take into account the effects of their undertakings on properties included in or eligible for inclusion in the National Register of Historic Places. Sets inventory, nomination, protection and preservation responsibilities for Federally-owned cultural properties.
Native American Graves Protection and Repatriation Act of 1990 (NAGPRA) 25 USC Sections 3001–3013	Provides for the protection of Native American human remains, funerary objects, sacred objects and objects of cultural patrimony on Federal land. Establishes procedures for determining ownership of such remains and objects under Federal jurisdiction.
<b>GEOLOGY AND PALEONTOLOGY</b>	
<b>Federal</b>	
Antiquities Act of 1906 (16 USC Sections 431–433; 43 CFR Part 3)	The proposed GESP site is located entirely on land currently administered by the BLM. Although there is no specific mention of natural or paleontologic resources in the Act itself, or in the Act's uniform rules and regulations, ‘objects of antiquity’ has been interpreted to include fossils by the Federal Highways Act of 1956, the National Park Service (NPS), the BLM, the Forest Service (USFS), and other Federal agencies.
National Environmental Policy Act of 1970 (NEPA) (42 USC Section 4321 et. seq.)	Established the Council on Environmental Quality (CEQ), which is charged with preserving ‘important historic, cultural, and natural aspects of our national heritage’.
Federal Land Policy and Management Act of 1976 (FLPMA) (43 USC Sections 1701–1784)	Authorizes the BLM to manage public lands to protect the quality scientific, scenic, historical, archeological, and other values, and to develop ‘regulations and plans for the protection of public land areas of critical environmental concern’, which include ‘important historic, cultural or scenic values’.
Paleontologic Resources Preservation Act (PRPA) (Public Law 111-011)	Authorizes Departments of Interior and Agriculture Secretaries to manage the protection of paleontologic resources on Federal lands.
National Historic Preservation Act of 1966 (NHPA) (16 USC 470)	Establishes policies for the ‘preservation of the prehistoric and historic resources of the United States’,.
<b>State</b>	
California Building Code (CBC), 2007	Includes a series of standards that are used in project investigation, design, and construction (including grading and erosion control).
Alquist-Priolo Earthquake Fault Zoning Act (California Public Resources Code [PRC], Sections 2621–2630)	Mitigates against surface fault rupture of known active faults beneath occupied structures. Requires disclosure to potential buyers of existing real estate and a 50-foot setback for new occupied buildings. Portions of the site and proposed ancillary facilities are located within designated Alquist-Priolo Fault Zones. The proposed site layout places occupied structures outside of the 50-foot setback zone.
Seismic Hazards Mapping Act (PRC Sections 2690–2699)	Identifies areas that are subject to the effects of strong ground shaking, such as liquefaction, landslides, tsunamis, and seiches.
PRC Sections 5097.5 and 30244	Regulates removal of paleontologic resources from state lands, defines unauthorized removal of fossil resources as a misdemeanor, and requires mitigation of disturbed sites.



**TABLE 1-1 (Continued)**  
**GENERAL LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)**

<b>Applicable LORS</b>	<b>Description</b>
<b>GEOLOGY AND PALEONTOLOGY (cont.)</b>	
<b>State (cont.)</b>	
Warren-Alquist Act (PRC Sections 25527 and 25550.5(i))	Requires the CEC to “give the greatest consideration to the need for protecting areas of critical environmental concern, including, but not limited to, unique and irreplaceable scientific, scenic, and educational wildlife habitats; unique historical, archaeological, and cultural sites...” With respect to paleontologic resources, the CEC relies on guidelines from the Society for Vertebrate Paleontology, indicated below.
Society for Vertebrate Paleontology (SVP), 1995	The “Measures for Assessment and Mitigation of Adverse Impacts to Non-Renewable Paleontologic Resources: Standard Procedures” is a set of procedures and standards for assessing and mitigating impacts to vertebrate paleontologic resources. The measures were adopted in October 1995 by the SVP, a national organization of professional scientists.
<b>Local</b>	
Riverside County General Plan 2000, Safety Element	Adopts the Uniform Building Code (UBC) (1997), which provides design criteria for buildings and excavations. The UBC is superseded by the CBC (2007). Requires mitigation measures for geologic hazards, including seismic shaking, surface rupture (adopts Alquist-Priolo Earthquake Fault Zoning Act), liquefaction, unstable soils and slopes, and flooding.
Riverside County General Plan 2000, Multipurpose Open Space Element	Provides for ‘preservation of cultural, historical, archaeological, paleontologic, geologic and educational resources’. Also provides a map showing paleontologic sensitivity in the county.
<b>HAZARDOUS MATERIALS MANAGEMENT</b>	
<b>Federal</b>	
Superfund Amendments and Reauthorization Act of 1986 (42 USC Section 9601 et seq.)	Contains the Emergency Planning and Community Right To Know Act (also known as SARA Title III).
Clean Air Act of 1990 (CAA) (42 USC 7401 et seq., as amended)	Establishes a nationwide emergency planning and response program and imposes reporting requirements for businesses that store, handle, or produce significant quantities of extremely hazardous materials.
The CAA section on risk management plans (42 USC Section 112(r))	Requires states to implement a comprehensive system informing local agencies and the public when a significant quantity of such materials is stored or handled at a facility. The requirements of both SARA Title III and the CAA are reflected in the California Health and Safety Code, section 25531, et seq.
49 CFR 172.802	Contains the U.S. Department of Transportation (DOT) requirement that suppliers of hazardous materials prepare and implement security plans.
49 CFR Part 1572, Subparts A and B	Requires suppliers of hazardous materials to ensure that all their hazardous materials drivers are in compliance with personnel background security checks.
Oil Pollution Prevention Regulation (40 CFR 112)	Aims to prevent the discharge or threat of discharge of oil into navigable waters or adjoining shorelines. Requires a written spill prevention, control, and countermeasures (SPCC) plan to be prepared for facilities that store oil that could leak into navigable waters.
49 CFR Part 190	Outlines gas pipeline safety program procedures.
49 CFR Part 191	Addresses transportation of natural and other gas by pipeline: annual reports, incident reports, and safety-related condition reports. Requires operators of pipeline systems to notify the DOT of any reportable incident by telephone and then submit a written report within 30 days.
49 CFR Part 192	Addresses transportation of natural and other gas by pipeline and minimum Federal safety standards, specifies minimum safety requirements for pipelines including material selection, design requirements, and corrosion protection. The safety requirements for pipeline construction vary according to the population density and land use that characterize the surrounding land. This part also contains regulations governing pipeline construction (which must be followed for Class 2 and Class 3 pipelines) and the requirements for preparing a pipeline integrity management program.

**TABLE 1-1 (Continued)**  
**GENERAL LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)**

<b>Applicable LORS</b>	<b>Description</b>
<b>HAZARDOUS MATERIALS MANAGEMENT (cont.)</b>	
<b>State</b>	
Interim Final Rule (6 CFR Part 27)	A regulation of the U.S. Department of Homeland Security that requires facilities that use or store certain hazardous materials to submit information to the Department so that a vulnerability assessment can be conducted to determine what certain specified security measures shall be implemented.
8 CCR Section 5189	Requires facility owners to develop and implement effective safety management plans that ensure that large quantities of hazardous materials are handled safely. While such requirements primarily provide for the protection of workers, they also indirectly improve public safety and are coordinated with the Risk Management Plan (RMP) process.
HSC Section 41700	Requires that "No person shall discharge from any source whatsoever such quantities of air contaminants or other material which causes injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause injury or damage to business or property."
California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65) (HSC Section 25249.5 et seq.)	Prevents certain chemicals that cause cancer and reproductive toxicity from being discharged into sources of drinking water.
Hazardous Material Business Plan (HSC Sections 25500-25541; 19 CCR Sections 2720-2734)	Requires the submittal of a chemical inventory and planning and reporting for management of hazardous materials.
Hazardous Substance Information and Training Act, 8 CCR Section 339; Section 3200 et seq., 5139 et seq., and 5160 et seq.	8 CCR Section 339 lists hazardous chemicals relating to the Hazardous Substance Information and Training Act; 8 CCR Section 3200 et seq. and Section 5139 et seq. address the control of hazardous substances; 8 CCR Section 5160 et seq. addresses hot, flammable, poisonous, corrosive, and irritant substances. Together, these sections require the listing and implementation of specified control measures for the management of hazardous substances.
HSC Sections 25270- 25270.13	Requires the preparation of a Spill Prevention, Control, and Countermeasures (SPCC) Plan if 10,000 gallons or more of petroleum is stored on-site. The regulations would also require the immediate reporting of a spill or release of 42 gallons or more to the California Office of Emergency Services and the Certified Unified Program Authority (CUPA).
Process Safety Management (8 CCR Section 5189)	Requires facility owners to develop and implement effective process safety management plans when toxic, reactive, flammable, or explosive chemicals are maintained on site in quantities that exceed regulatory thresholds.
<b>Local</b>	
Riverside County Fire Code, Riverside County Code Chapter 8.32: Ordinance No. 787	Adopts the California Fire Code, 2007 Edition, with some of its appendices, into Riverside County regulations.
Disclosure of Hazardous Materials and the Formulation of Business Emergency Plans: Riverside County Ordinance 651	Requires disclosure where businesses handle hazardous materials and requires the development of response plans; designates Riverside County Department of Environmental Health as responsible for administration and enforcement of local codes.
<b>PUBLIC HEALTH AND SAFETY</b>	
<b>Federal</b>	
Clean Air Act Section 112 (42 USC Section 7412)	Requires new sources of air pollution that emit more than 10 tons per year of any specified Hazardous Air Pollutant (HAP) or more than 25 tons per year of any combination of HAPs to apply Maximum Achievable Control Technology.

**TABLE 1-1 (Continued)**  
**GENERAL LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)**

<b>Applicable LORS</b>	<b>Description</b>
<b>PUBLIC HEALTH AND SAFETY (cont.)</b>	
<b>State</b>	
California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65) (HSC Section 25249.5 et seq.)	Establish thresholds of exposure to carcinogenic substances above which Prop 65 exposure warnings are required.
HSC Section 41700	States that “no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause injury or damage to business or property.”
Air Toxics Hot Spots Program (HSC Section 44300 et seq.)	Requires participation in the inventory and reporting program at the District level.
Air Toxics Hot Spots Information and Assessment Act (HSC Sections 44360– 44366)	Requires that, based on results of a Health Risk Assessment (HRA) conducted per CARB/OEHHA guidelines, toxic contaminants do not exceed acceptable levels.
PRC Section 25523(a); 20 CCR Sections 1752.5, 2300–2309 and Div. 2 Chapter 5, Article 1, Appendix B, Part (1); California Clean Air Act, HSC Section 39650, et seq.	Requires a quantitative HRA for new or modified sources, including power plants that emit one or more toxic air contaminants (TACs).
<b>Local</b>	
Mojave Desert Air Quality Management District (MDAQMD) Rule 402	Prohibits the discharge of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to the public; endanger the comfort, repose, health or safety of the public; or cause injury or damage to business or property.
MDAQMD Regulation X Emission Standards for Additional Specific Air Contaminants	Provides notice to the regulated community that California Air Toxic Control measures (ATCMs) are enforceable by the MDAQMD within its jurisdiction and Federal maximum achievable control technology (MACT) and NESHAPS are adopted by reference and enforced by the MDAQMD.
MDAQMD Rule 1320	Requires the use of best available control technology (BACT) and best available control technology for toxics (T-BACT) at certain projects and the preparation of an HRA.
MDAQMD Rule 1520	Implementation of HSC Section 44300 et seq., Air Toxics “Hot Spots” Information and Assessment Act.
<b>SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE</b>	
<b>Federal</b>	
Emergency Economic Stabilization Act of 2008 (PL 110-343) Business Solar Investment Tax Credit (Internal Revenue Code Section 48)	Extends the 30 percent investment tax credit (ITC) for solar energy property for eight years through December 31, 2016. The bill allows the ITC to be used to offset both regular and alternative minimum tax (AMT) and waives the public utility exception of current law (i.e., permits utilities to directly invest in solar facilities and claim the ITC). The five-year accelerated depreciation allowance for solar property is permanent and unaffected by passage of the eight-year extension of the solar ITC.
<b>State</b>	
California Revenue and Taxation Code Section 73	Allows property tax exclusion for certain types of solar energy systems.
California Education Code Section 17620	The governing board of any school district is authorized to levy a fee, charge, dedication, or other requirement for the purpose of funding the construction or reconstruction of school facilities.
California Government Code Sections 65996-65997	Except for a fee, charge, dedication, or other requirement authorized under Section 17620 of the Education Code, state and local public agencies may not impose fees, charges, or other financial requirements to offset the cost for school facilities.

**TABLE 1-1 (Continued)**  
**GENERAL LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)**

<b>Applicable LORS</b>	<b>Description</b>
<b>TRANSMISSION LINE SAFETY AND NUISANCE (TLSN)</b>	
<b>Federal (Aviation Safety)</b>	
Objects Affecting the Navigable Air Space (14 CFR Part 77)	Describes the criteria used to determine the need for a Federal Aviation Administration (FAA) "Notice of Proposed Construction or Alteration" in cases of potential obstruction hazards.
FAA Advisory Circular No. 70/7460-1G, "Proposed Construction and/or Alteration of Objects that May Affect the Navigation Space"	Addresses the need to file the "Notice of Proposed Construction or Alteration" form (Form 7640) with the FAA in cases of potential for an obstruction hazard.
FAA Advisory Circular 70/460-1G, "Obstruction Marking and Lighting"	Describes the FAA standards for marking and lighting objects that may pose a navigation hazard as established using the criteria in Title 14, Part 77 of the CFR.
<b>Federal (Interference with Radio Frequency Communication)</b>	
47 CFR Section 15.2524, Federal Communications Commission (FCC)	Prohibits operation of devices that can interfere with radio-frequency communication and requires mitigation of any interference by the owner of the source.
<b>State (Interference with Radio Frequency Communication)</b>	
California Public Utilities Commission (CPUC) General Order 52 (GO-52)	Governs the construction and operation of power and communications lines to prevent or mitigate interference.
<b>Local (Audible Noise)</b>	
Riverside County General Plan, Noise Element	Establishes policies and programs to ensure that noise levels are appropriate to land uses.
Riverside County Noise Ordinance	Establishes performance standards for planned residential or other noise-sensitive land uses.
<b>State (Hazardous and Nuisance Shocks)</b>	
Rules for Overhead Electric Line Construction (CPUC GO-95)	Governs clearance requirements to prevent hazardous shocks, grounding techniques to minimize nuisance shocks, and maintenance and inspection requirements.
High Voltage Safety Orders (8 CCR Section 2700 et seq.)	Specifies requirements and minimum standards for safely installing, operating, working around, and maintaining electrical installations and equipment.
National Electrical Safety Code (i.e. National Fire Protection Association [NFPA] 70E)	OSHA adopted the NESC/NFPA 70E which specifies grounding procedures to limit nuisance shocks. Also specifies minimum conductor ground clearances.
<b>Industry Standards (Hazardous and Nuisance Shocks)</b>	
Institute of Electrical and Electronics Engineers (IEEE) 1119, "IEEE Guide for Fence Safety Clearances in Electric-Supply Stations"	Specifies the guidelines for grounding-related practices within the right-of-way and substations.
<b>State (Electric and Magnetic Fields)</b>	
Rules for Planning and Construction of Electric Generation Line and Substation Facilities in California (CPUC GO-131-D)	Specifies application and noticing requirements for new line construction including electromagnetic fields (EMF) reduction.
CPUC Decision 93-11-013	Specifies CPUC requirements for reducing power frequency EMF.

**TABLE 1-1 (Continued)**  
**GENERAL LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)**

Applicable LORS	Description
<b>TRANSMISSION LINE SAFETY AND NUISANCE (TLSN) (cont.)</b>	
<b>Industry Standards (Electric and Magnetic Fields)</b>	
American National Standards Institute (ANSI/IEEE) 644-1944 Standard Procedures for Measurement of Power Frequency Electric and Magnetic Fields from AC Power Lines	Specifies standard procedures for measuring EMF from an operating electric line.
<b>State (Fire Hazards)</b>	
Fire Prevention Standards for Electric Utilities (14 CCR Sections 1250-1258)	Provides specific exemptions from electric pole and tower firebreak and conductor clearance standards and specifies when and where standards apply.
<b>VISUAL RESOURCES</b>	
<b>Federal</b>	
California Desert Conservation Area (CDCA) Plan	<p>The GESP is located within the California Desert Conservation Area Plan, which is the BLM Resource Management Plan applicable to the GESP site (USDOI, 1980, as amended). The CDCA Plan did not include Visual Resource Management (VRM) inventory or management classes. However, a BLM-approved Visual Resource Inventory (VRI) was conducted in 2005 for the Devers-Palo Verde 2 Transmission Line Project EIS/EIR, which covers the site of the proposed action.</p> <p>The GESP site is classified in the CDCA Plan as Multiple-Use Class (MUC) M (Moderate Use). Management of MUC M lands is based upon a controlled balance between higher intensity use and protection of public lands. This class provides for a wide variety of present and future uses such as mining, livestock grazing, recreation, energy, and utility development. Class M management is also designed to conserve desert resources and to mitigate damage to those resources, which permitted uses may cause.</p> <p>Table 1 of the CDCA Plan illustrates the types of allowable land uses by MUC Class. The table specifically includes Electrical Power Generation Facilities including Wind/Solar facilities. Guidance provided under this section allows for the authorization of such facilities within MUC M lands in compliance with NEPA requirements.</p> <p>New major electric transmission facilities may be allowed only within designated utility corridors. Existing facilities within designated utility corridors may be maintained and upgraded or improved in accordance with existing rights-of-way or amendments to right-of-way grants.</p>
<b>State</b>	
State Scenic Highway Program (California Streets and Highways Code Sections 260-263)	The California State Department of Transportation (Caltrans) identifies a state system of eligible and designated scenic highways which, if designated, are subject to various controls intended to preserve their scenic quality. Interstate 10 within the project viewshed is not listed as an eligible State Scenic Highway.
<b>Local</b>	
Riverside County Integrated Plan LU-4 Relating to Project Design	<p><b>LU 4.1:</b> Requires that new developments be located and designed to visually enhance, not degrade the character of the surrounding area through consideration of the following concepts:</p> <ul style="list-style-type: none"> <li>c. Require that an appropriate landscape plan be submitted and implemented for development projects subject to discretionary review.</li> <li>d. Require that new development utilize drought-tolerant landscaping and incorporate adequate drought-conscious irrigation systems.</li> <li>l. Mitigate noise, odor, lighting, and other impacts on surrounding properties.</li> </ul>

**TABLE 1-1 (Continued)**  
**GENERAL LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)**

Applicable LORS	Description
<b>VISUAL RESOURCES (cont.)</b>	
<b>Local (cont.)</b>	
Riverside County Integrated Plan LU-4 Relating to Project Design (cont.)	<p>m. Provide and maintain landscaping in open spaces and parking lots.</p> <p>n. Include extensive landscaping.</p> <p>o. Preserve natural features, such as unique natural terrain, drainage ways, and native vegetation, wherever possible, particularly where they provide continuity with more extensive regional systems.</p> <p>p. Require that new development be designed to provide adequate space for pedestrian connectivity and access, recreational trails, vehicular access and parking, supporting functions, open space, and other pertinent elements.</p> <p><i>LU 4.2:</i> Require property owners to maintain structures and landscaping to a high standard of design, health, and safety through the following:</p> <p>c. Promote and support community and neighborhood based efforts for the maintenance, upkeep, and renovation of structures and sites.</p>
County Scenic Corridors	<p><i>LU 13.1:</i> Preserve and protect outstanding scenic vistas and visual features for the enjoyment of the traveling public.</p> <p><i>LU 13.3:</i> Ensure that the design and appearance of new landscaping, structures, equipment, signs, or grading within Designated and Eligible State and County scenic highway corridors are compatible with the surrounding scenic setting or environment.</p> <p><i>LU 13.7:</i> Require that the size, height, and type of on-premise signs visible from Designated and Eligible State and County Scenic Highways be the minimum necessary for identification. The design, materials, color, and location of the signs shall blend with the environment, utilizing natural materials where possible.</p> <p><i>LU 13.8:</i> Avoid the blocking of public views by solid walls.</p>
The following policies apply to properties designated as Open Space-Rural on the area plan land use maps.	<p><i>LU 20.1:</i> Require that structures be designed to maintain the environmental character in which they are located.</p> <p><i>LU 20.2:</i> Require that development be designed to blend with undeveloped natural contours of the site and avoid an unvaried, unnatural, or manufactured appearance.</p> <p><i>LU 20.3:</i> Require that adequate and available circulation facilities, water resources, sewer facilities, and/or septic capacity exist to meet the demands of the proposed land use.</p> <p><i>LU 20.4:</i> Ensure that development does not adversely impact the open space and rural character of the surrounding area.</p>
<b>WASTE MANAGEMENT</b>	
<b>Federal</b>	
Solid Waste Disposal Act of 1965 (as amended and revised by the Resource Conservation and Recovery Act of 1976, et al.) (42 USC Section 6901 et seq.)	<p>The Solid Waste Disposal Act, as amended and revised by the Resource Conservation and Recovery Act (RCRA) establishes requirements for the management of solid wastes (including hazardous wastes), landfills, underground storage tanks, and certain medical wastes. The statute also addresses program administration, implementation and delegation to states, enforcement provisions, and responsibilities, as well as research, training, and grant funding provisions.</p> <p>RCRA Subtitle C establishes provisions for the generation, storage, treatment, and disposal of hazardous waste, including requirements addressing:</p> <ul style="list-style-type: none"> <li>Generator record keeping practices that identify quantities of hazardous wastes generated and their disposition;</li> <li>Waste labeling practices and use of appropriate containers;</li> <li>Use of a manifest when transporting wastes;</li> </ul>

**TABLE 1-1 (Continued)**  
**GENERAL LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)**

Applicable LORS	Description
<b>WASTE MANAGEMENT (cont.)</b>	
<b>Federal (cont.)</b>	
Solid Waste Disposal Act of 1965 (as amended and revised by the Resource Conservation and Recovery Act of 1976, et al.) (42 USC Section 6901 et seq.) (cont.)	<p>Submission of periodic reports to the United States Environmental Protection Agency (U.S. EPA) or other authorized agency; and</p> <p>Corrective action to remediate releases of hazardous waste and contamination associated with RCRA-regulated facilities.</p> <p>RCRA Subtitle D establishes provisions for the design and operation of solid waste landfills.</p> <p>RCRA is administered at the Federal level by U.S. EPA and its 10 regional offices. The Pacific Southwest regional office (Region 9) implements U.S. EPA programs in California, Nevada, Arizona, and Hawaii.</p>
Comprehensive Environmental Response, Compensation and Liability Act (Superfund) (42 USC Section 9601 et seq.)	<p>Establishes authority and funding mechanisms for cleanup of uncontrolled or abandoned hazardous waste sites, as well as cleanup of accidents, spills, or emergency releases of pollutants and contaminants into the environment. Among other things, the statute addresses:</p> <p>Reporting requirements for releases of hazardous substances;</p> <p>Requirements for remedial action at closed or abandoned hazardous waste sites, and brownfields;</p> <p>Liability of persons responsible for releases of hazardous substances or waste; and</p> <p>Requirements for property owners/potential buyers to conduct "all appropriate inquiries" into previous ownership and uses of the property to 1) determine if hazardous substances have been or may have been released at the site, and 2) establish that the owner/buyer did not cause or contribute to the release. A Phase I Environmental Site Assessment is commonly used to satisfy CERCLA "all appropriate inquiries" requirements.</p>
40 CFR Subchapter I – Solid Wastes	<p>Implements the provisions of the Solid Waste Disposal Act and RCRA (described above). Among other things, the regulations establish the criteria for classification of solid waste disposal facilities (landfills), hazardous waste characteristic criteria and regulatory thresholds, hazardous waste generator requirements, and requirements for management of used oil and universal wastes.</p> <p>Part 257 addresses the criteria for classification of solid waste disposal facilities and practices.</p> <p>Part 258 addresses the criteria for municipal solid waste landfills.</p> <p>Parts 260 through 279 address management of hazardous wastes, used oil, and universal wastes (i.e., batteries, mercury-containing equipment, and lamps).</p> <p>U.S. EPA implements the regulations at the Federal level. However, California is an RCRA-authorized state, so most of the solid and hazardous waste regulations are implemented by state agencies and authorized local agencies in lieu of U.S. EPA.</p>
Hazardous Materials Regulations (49 CFR Parts 172 and 173)	Address the U.S. Department of Transportation (DOT) established standards for transport of hazardous materials and hazardous wastes. The standards include requirements for labeling, packaging, and shipping of hazardous materials and hazardous wastes, as well as training requirements for personnel completing shipping papers and manifests. Section 172.205 specifically addresses use and preparation of hazardous waste manifests in accordance with 40 CFR Section 262.20.
Clean Water Act (33 USC Section 1251 et seq.)	The Clean Water Act governs the discharge of wastewater to surface waters of the U.S.

**TABLE 1-1 (Continued)**  
**GENERAL LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)**

Applicable LORS	Description
<b>WASTE MANAGEMENT (cont.)</b>	
<b>State</b>	
Hazardous Waste Control Act of 1972, as amended (HSC Section 25100 et seq.)	<p>Creates the framework under which hazardous wastes are managed in California. The law provides for the development of a state hazardous waste program that administers and implements the provisions of the Federal RCRA program. It also provides for the designation of California-only hazardous wastes and development of standards (regulations) that are equal to or, in some cases, more stringent than Federal requirements.</p> <p>The California Environmental Protection Agency (Cal/EPA), Department of Toxic Substances Control (DTSC) administers and implements the provisions of the law at the state level. Certified Unified Program Agencies (CUPAs) implement some elements of the law at the local level.</p>
Environmental Health Standards for the Management of Hazardous Waste (22 CCR Div. 4.5, Section 66001 et seq.)	<p>Establish requirements for the management and disposal of hazardous waste in accordance with the provisions of the California Hazardous Waste Control Act and Federal RCRA. As with the Federal requirements, waste generators must determine if their wastes are hazardous according to specified characteristics or lists of wastes. Hazardous waste generators must obtain identification numbers; prepare manifests before transporting the waste off site; and use only permitted treatment, storage, and disposal facilities. Generator standards also include requirements for record keeping, reporting, packaging, and labeling. Additionally, while not a Federal requirement, California requires that hazardous waste be transported by registered hazardous waste transporters.</p> <p>The standards addressed by 22 CCR include:</p> <ul style="list-style-type: none"> <li>Identification and Listing of Hazardous Waste (Ch. 11, Section 66261.1 et seq.).</li> <li>Standards Applicable to Generator of Hazardous Waste (Ch. 12, Section 66262.10 et seq.).</li> <li>Standards Applicable to Transporters of Hazardous Waste (Ch. 13, Section 66263.10 et seq.).</li> <li>Standards for Universal Waste Management (Ch. 23, Section 66273.1 et seq.).</li> <li>Standards for the Management of Used Oil (Ch. 29, Section 66279.1 et seq.).</li> <li>Requirements for Units and Facilities Deemed to Have a Permit by Rule (Ch. 45, Section 67450.1 et seq.).</li> </ul> <p>The Title 22 regulations are established and enforced at the state level by DTSC. Some generator and waste treatment standards are also enforced at the local level by CUPAs.</p>
Unified Hazardous Waste and Hazardous Materials Management Regulatory Program  (Unified Program) (HSC Ch. 6.11, Sections 25404–25404.9)	<p>Consolidates, coordinates, and makes consistent the administrative requirements, permits, inspections, and enforcement activities of the six environmental and emergency response programs listed below.</p> <ul style="list-style-type: none"> <li>Aboveground Petroleum Storage Act requirements for Spill Prevention, Control, and Countermeasure (SPCC) Plans.</li> <li>Hazardous Materials Release and Response Plans and Inventories (Business Plans).</li> <li>California Accidental Release Prevention (CalARP) Program.</li> <li>Hazardous Materials Management Plan / Hazardous Materials Inventory Statements.</li> <li>Hazardous Waste Generator / Tiered Permitting Program.</li> <li>Underground Storage Tank Program.</li> </ul> <p>The state agencies responsible for these programs set the standards for their programs while local governments implement the standards. The local agencies implementing the Unified Program are known as CUPAs.</p> <p>Note: The Waste Management analysis only considers application of the Hazardous Waste Generator/Tiered Permitting element of the Unified Program.</p>



**TABLE 1-1 (Continued)**  
**GENERAL LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)**

<b>Applicable LORS</b>	<b>Description</b>
<b>WASTE MANAGEMENT (cont.)</b>	
<b>State (cont.)</b>	
Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (27 CCR Div. 1, Subdiv. 4, Ch. 1, Section 15100 et seq.)	<p>While these regulations primarily address certification and implementation of the program by the local CUPAs, the regulations do contain specific reporting requirements for businesses.</p> <p>Article 9 – Unified Program Standardized Forms and Formats (Sections 15400–15410).</p> <p>Article 10 – Business Reporting to CUPAs (Sections 15600–15620).</p>
California Integrated Waste Management Act of 1989 (CIWMA) (PRC Div. 30, Section 40000 et seq.)	Establishes mandates and standards for management of solid waste in California. The law addresses solid waste landfill diversion requirements; establishes the preferred waste management hierarchy (source reduction first, then recycling and reuse, and treatment and disposal last); sets standards for design and construction of municipal landfills; and addresses programs for county waste management plans and local implementation of solid waste requirements.
California Integrated Waste Management Board (14 CCR Div. 7, Section 17200 et seq.)	<p>Implement the provisions of the CIWMA and set forth minimum standards for solid waste handling and disposal. The regulations include standards for solid waste management, as well as enforcement and program administration provisions.</p> <p>Chapter 3 – Minimum Standards for Solid Waste Handling and Disposal.</p> <p>Chapter 3.5 – Standards for Handling and Disposal of Asbestos Containing Waste.</p> <p>Chapter 7 – Special Waste Standards.</p> <p>Chapter 8 – Used Oil Recycling Program.</p> <p>Chapter 8.2 – Electronic Waste Recovery and Recycling.</p>
Hazardous Waste Source Reduction and Management Review Act of 1989 (HWSRMRA) (HSC Div. 20, Ch. 6.5, Art. 11.9, Section 25244.12 et seq.)	Expands the state's hazardous waste source reduction activities. Among other things, it establishes hazardous waste source reduction review, planning, and reporting requirements for businesses that routinely generate more than 12,000 kilograms (approximately 26,400 pounds) of hazardous waste in a designated reporting year. The review and planning elements are required to be done on a four-year cycle, with a summary progress report due to DTSC every fourth year.
Hazardous Waste Source Reduction and Management Review (22 CCR Section 67100.1 et seq.)	Implement the provisions of the HWSRMRA. The regulations establish the specific review elements and reporting requirements to be completed by generators subject to the act.
23 CCR Div. 3, Ch. 16 and 18	Relate to hazardous material storage and petroleum UST cleanup, as well as hazardous waste generator permitting, handling, and storage. The DTSC Imperial County CUPA is responsible for local enforcement.
<b>Local</b>	
County of Riverside General Plan, Safety Element: Policy S 6.1	Describes the County's policies and siting criteria identified in the County of Riverside Hazardous Waste Management Plan including coordination of hazardous waste facility responsibilities on a regional basis through the Southern California Hazardous Waste Management Authority
Riverside County Code Title 8 Chapters 8.60, 8.84, and 8.132, Health and Safety	Establishes requirements for the use, generation, storage, and disposal of hazardous and non-hazardous materials and wastes within the County.
Riverside County Code, Chapter 8.32, Ordinance No. 787, Fire	Adopts the 2007 California Fire Code.

**TABLE 1-1 (Continued)**  
**GENERAL LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)**

<b>Applicable LORS</b>	<b>Description</b>
<b>WORKER SAFETY AND FIRE PROTECTION</b>	
<b>Federal</b>	
Occupational Safety and Health Act of 1970 (29 USC Section 651 et seq.)	Mandates safety requirements in the workplace with the purpose of "[assuring] so far as possible every working man and woman in the nation safe and healthful working conditions and to preserve our human resources" (29 USC Section 651).
Occupational Safety and Health Administration Safety and Health Regulations (29 CFR Sections 1910.1- 1910.1500)	Define the procedures for promulgating regulations and conducting inspections to implement and enforce safety and health procedures to protect workers, particularly in the industrial sector.
29 CFR Sections 1952.170-1952.175	Provide Federal approval of California's plan for enforcement of its own Safety and Health requirements, in lieu of most of the Federal requirements found in 29 CFR sections 1910.1 to 1910.1500.
<b>State</b>	
Cal/OSHA regulations (8 CCR)	Require that all employers follow these regulations as they pertain to the work involved, including regulations pertaining to safety matters during construction, commissioning, and operations of power plants, as well as safety around electrical components, fire safety, and hazardous materials use, storage, and handling.
24 CCR Section 3 et seq.	Incorporate the current edition of the Uniform Building Code.
HSC Section 25500 et seq.	Present Risk Management Plan requirements for threshold quantities of listed acutely hazardous materials at a facility.
HSC Sections 25500-25541	Require a Hazardous Material Business Plan detailing emergency response plans for hazardous materials emergency at a facility.
<b>Local</b>	
Riverside County Ordinance 457	Adopts specific building, mechanical, plumbing, and electrical codes from sources such as the California Building Standards Commission with county-specific modifications.
Riverside County Ordinance 787	Adopts the 2007 edition of the California Fire Code and portions of the 2007 edition of the California Building Code with county-specific modifications.
Riverside County Ordinance 615	Establishes requirements for the use, generation, storage and disposal of hazardous materials within the County.
Riverside County Dept. of Environmental Health, Hazardous Materials Releases	Adopts State requirements and guidelines to govern hazardous materials release response plans and inventories.
Chapter 22 of the 2007 California Fire Code	Addresses requirements for Motor Fuel-Dispensing Facilities and Repair Garages. It has been adopted by Riverside County and will apply to the fuel depot at the site.
NFPA 30a	This is the NFPA code for Motor Fuel Dispensing Facilities and Repair Garages (2008 Edition) and is the industry standard for fuel depots.
<b>NOISE</b>	
<b>Federal</b>	
Occupational Safety & Health Act (OSHA): 29 U.S.C. Section 651 et seq.	Protects workers from the effects of occupational noise exposure.
<b>State</b>	
California Occupational Safety & Health Act (Cal-OSHA): 29 U.S.C. Section 651 et seq., Cal. Code Regs., tit. 8, Sections 5095-5099	Protects workers from the effects of occupational noise exposure. Note, These standards are equivalent to federal OSHA standards

**TABLE 1-1 (Continued)**  
**GENERAL LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)**

<b>Applicable LORS</b>	<b>Description</b>
<b>NOISE (cont.)</b>	
<b>Local</b>	
Riverside County General Plan, Noise Element	Establishes goals, objectives, and procedures to protect the public from noise intrusion. Land use compatibility defines the acceptability of a land use in a specified noise environment. For residential land uses, these guidelines categorize noise levels of up to 60 dBA day/night average sound level (Ldn) or CNEL as “normally acceptable” and up to 70 dBA Ldn or CNEL as “conditionally acceptable.”
Riverside County Noise Ordinance, Ordinance 847	Section 4 of Ordinance No. 847 (Regulating Noise) limits noise on any property that causes the exterior noise level on any other occupied property to 55 dBA during the daytime hours and 45 dBA during the nighttime hours, for noise-sensitive receptors <sup>3</sup> within a very low density rural area, such the area surrounding the site.  Also limits the hours of construction activities to the hours of 6:00 a.m. to 7:00 p.m., June through September, 6:00 a.m. to 6:00 p.m., October through May, Mondays through Fridays, and to 9:00 a.m. to 5:00 p.m. on Saturdays.

Also see Appendix B, which describes the Federal Laws, Regulations and Executive Orders that apply to BLM-administered lands in the action area.

## **1.6 Relationship of Proposed Action to non-BLM Policies, Plans, and Programs**

The CEC and BLM seek comments from and work closely with other regulatory agencies that administer LORS that may be applicable to proposed projects. These agencies may include as applicable, the U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, State Water Resources Control Board/Regional Water Quality Control Board, State Historic Preservation Officer, California Department of Fish and Game, and the Mojave Desert Air Quality Management District. On December 21, 2009, the CEC staff sent the GSEP AFC to all local, state, and federal agencies that might be affected by or have an interest in the proposed project.

The BLM has notified affected Indian Tribes regarding the proposed project, has sought their comments, and has invited them to consult on the project on a government-to government basis. The affected Indian Tribes are currently working with the BLM.

<sup>3</sup> A sensitive noise receptor, also referred to as a noise-sensitive receptor, is a receptor at which there is a reasonable degree of sensitivity to noise (such as residences, schools, hospitals, elder care facilities, libraries, cemeteries, and places of worship).

## 1.7 Scoping

The Notice of Intent to prepare an environmental impact statement for this proposed project was published in the *Federal Register* on November 23, 2009. On December 11, 2009, BLM held its Scoping Meeting at the University of California-Riverside, Palm Desert Campus. A draft scoping report was released for public review and comment in January 2010. (See Appendix C Results of Scoping).

BLM gave a presentation at and participated in the CEC's January 25, 2010 Informational Hearing in Blythe, California and Site Visit for GSEP. In addition to property owners and persons on the general project mail-out list, notification was provided to local, state and federal public interest and regulatory organizations with an expressed or anticipated interest in this project. Also, elected and certain appointed officials were similarly notified of the hearing and site visit.

## CHAPTER 2

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# Proposed Action and Alternatives

On January 31, 2007, the BLM Palm Springs-South Coast Field Office received an application to construct, operate, maintain and decommission a project identified as the NextEra Ford Dry Lake Solar Power Plant on BLM-administered land in Eastern Riverside County, California. In June 2009, the Applicant notified BLM that the company name was being changed to Genesis Solar, LLC, and the Proposed Action became known as the Genesis Solar Energy Project (GSEP or Proposed Action). The Proposed Action would be located approximately 27 miles east of the unincorporated community of Desert Center and 25 miles west of the Arizona-California border city of Blythe in Riverside County, California (refer to Figure 1-1).

This section provides a description of the proposed GSEP and five alternatives on BLM-administered lands. Two of the five are action alternatives: the Reduced Acreage Alternative that would generate 125 megawatts (MW) rather than the 250 MW Proposed Action, and the Dry Cooling Alternative which is being analyzed as an alternative to the wet cooling process proposed in the GSEP. These alternatives include a plan amendment to make the project area suitable for solar energy development. Additionally, there is a no action alternative and 2 additional plan amendment only (no project) alternatives. Alternatives considered but eliminated from detailed analysis are also described.

Both action alternatives have a common description of equipment, systems, processes, resource inputs, operations, closure plans and general location. As such, in order to avoid redundancy, this section will present a single project description that identifies the elements that are common to all alternatives and then separately identify the elements that are unique to each alternative.

## 2.1 Proposed Land Use Plan Amendment Decisions

Potential LUP amendment decisions:

**PA1** – The CDCA (1980, as amended) would be amended to approve this site for development of this facility And all other types of solar energy development. (This is the proposed land use plan amendment.)

**PA2** – The CDCA Plan (1980, as amended) would not be amended. (This is No Action Alternative A, discussed in Table ES-1.)

**PA3** – The CDCA Plan (1980, as amended) would be amended to identify the GSEP application area as unsuitable for any type of solar energy development. (This is a no project alternative called “No Action Alternative B” and is discussed in Table ES-1.)

**PA4** – The CDCA Plan (1980, as amended) would be amended to identify the GSEP application area as suitable for any type of solar energy development. (This is a no project alternative called “No Action Alternative C” and is discussed in Table ES-1.)

## 2.2 Action Alternatives Including the Proposed Action

### 2.2.1 Introduction

This section describes all three action alternatives: the Proposed Action, the Reduced Acreage Alternative, and the Dry Cooling Alternative. A number of scoping comments requested that the Proposed Action be reconfigured or reduced in size to avoid sensitive resources and to consider technologies that would reduce impacts to water use. Scoping comments suggested including the disturbed lands in the vicinity of the Proposed Action in the project footprint to make up for any loss in acreage of the reduced acreage alternative. The scoping comments are addressed in the alternatives described herein. Table 2-1 provides the total acres of permanent and temporary disturbance associated with the action alternatives.

**Table 2-1**  
**Proposed Action and Alternatives: Acres of Temporary and Permanent Disturbance**

	<b>Proposed Action (acres)</b>	<b>Reduced Acreage Alternative (acres)</b>	<b>Dry Cooling Alternative (acres)</b>
<b>Temporary Disturbance</b>			
Transmission Line			
Construction laydown/assembly areas	0.46	0.46	0.46
Conductor Pulling Area	4.02	4.02	4.02
Crossing Structures	1.84	1.84	1.84
Pole Pad Construction Areas	2.91	2.91	2.91
Pole Pad Construction Areas (at Colorado River Substation	.057	.057	.057
Gas Line			
Construction Right-of-Way	36.36	36.36	36.36
Roads			
Site Access Road Construction	15.76	15.76	15.76
<b>Total Temporary Disturbance</b>	<b>61.41</b>	<b>61.41</b>	<b>61.41</b>
<b>Permanent Disturbance</b>			
Transmission Pole Pads	0.05	0.05	0.05
Transmission Pole Pads (at Colorado River Substation	0.0008	0.0008	0.0008
Spur Roads	1.90	1.90	1.90
Site Access Road	23.64	23.64	23.64
Project Footprint	1,720	924	1,720
<b>Total Approximate Permanent Disturbance</b>	<b>1,746</b>	<b>950</b>	<b>1,746</b>

## Proposed Action

Genesis Solar, LLC, (Applicant) proposes to construct, operate, maintain and decommission the GSEP or Proposed Action which includes a 250 MW solar generating facility, 230-kV transmission line (gen-tie) and ancillary facilities (access road and natural gas pipeline) on BLM-administered land (see Figure 2-1). The applicant is seeking a right-of-way (ROW) grant for approximately 4,640 acres of land and a LUP Amendment as described above in Section 2.1. Construction and operation of the Proposed Action would disturb a total of about 1,800 acres within the site boundaries, and approximately 90 acres for linear facilities and drainage features outside the site boundaries. Any difference between the total acreage listed in the right-of-way application (4,640) and the total acreage required for construction of the Proposed Action and operation (approximately 1,800) would not be part of the ROW grant or LUP Amendment, should BLM authorize the Proposed Action.

The Applicant proposes to construct the GSEP in two phases which would be designed to generate a combined total of approximately 250 MW of electricity. Phase 1 would consist of the Unit 1 (western) powerblock, access road, natural gas pipeline, and electric transmission line, and Phase 2 would consist of the Unit 2 (eastern) powerblock.

The GSEP would consist of two independent solar electric generating facilities with a nominal net electrical output of 125 MW each, resulting in a total net electrical output of 250 MW. The Proposed Action would be designed to utilize solar parabolic trough technology to generate electricity.

With solar parabolic trough technology, arrays of parabolic mirrors collect heat energy from the sun and refocus the radiation on a receiver tube located at the focal point of the parabola. A heat transfer fluid (HTF) is heated to high temperature (740°F) as it circulates through the receiver tubes. The heated HTF is then piped through a series of heat exchangers where it releases its stored heat to generate high pressure steam. The steam is then fed to a traditional steam turbine generator where electricity is produced.

The overall site layout and generalized land uses are characterized as follows:

1. 250-MW facility (see Figure 2-2), including solar generation facilities; on-site switchyard (substation); administration, operations and maintenance facilities: approximately 1,800 acres;
2. Two evaporation ponds: up to 30 acres each (located within the 1,800-acre site);
3. The generated electrical power from the Proposed Action switchyard would be transmitted through a generation-tie (gen-tie) line that would be routed in a southeasterly ROW eventually connecting to the Southern California Edison (SCE) 500-230 kV Colorado River substation via the existing Blythe Energy Project Transmission Line (BEPTL) between the Julian Hinds and Buck substations.
4. Additional linear facilities off-site would include a 6.5 mile access road, telecommunication lines, and natural gas pipeline;
5. Surface water control facilities for storm water flow and discharge; and

6. Temporary construction laydown area(s) within the larger site footprint. No additional laydown areas outside the eventual project footprint are contemplated.

Access to the site would be via a new 6.5 mile long, 24 foot wide (approximately 18.9 acres) paved access road extending north and west from the existing Wiley's Well Road. Wiley's Well Road is accessible by both eastbound and westbound traffic off Interstate 10 (I-10) at the Wiley's Well Road Interchange (see Figure 3.12-1). The new access road would be constructed entirely on BLM-administered land.

The Proposed Action is a ROW grant and LUP Amendment describing the following BLM-administered land:

**San Bernardino Base and Meridian**

Township 6 South, Range 18 East,

section 1, S $\frac{1}{2}$ ;  
section 2, S $\frac{1}{2}$ ;  
section 3, S $\frac{1}{2}$ ;  
section 4.

Township 6 South, Range 19 East,

section 4; S $\frac{1}{2}$ ;  
section 5;  
section 6, SE $\frac{1}{4}$   
section 7, N $\frac{1}{2}$ NE $\frac{1}{4}$ .  
section 8; NE $\frac{1}{4}$ , N $\frac{1}{2}$ NW $\frac{1}{4}$ ;  
section 9, N $\frac{1}{2}$ ;  
section 10;  
section 11, W $\frac{1}{2}$ SW $\frac{1}{4}$ ;  
section 13, W $\frac{1}{2}$ ;  
section 14; N $\frac{1}{2}$ N $\frac{1}{2}$ ;  
section 15, N $\frac{1}{2}$ N $\frac{1}{2}$ ;  
section 24, NW $\frac{1}{4}$ .

## **Location of the Proposed Action**

The Proposed Action would be south of the Palen/McCoy Wilderness Area and north of Ford Dry Lake, and about 6 miles north of Interstate 10 (see Figure 2-3). The Proposed Action area would be located in a remote section of east central Riverside County, where land use is characterized predominantly by open space and conservation and wilderness areas (see Figure 2-4 and Figure 2-5). The western portion of the county accounts for most of the developed area of the county, including urban areas and agricultural areas. The southeastern corner of the county to the east of the Proposed Action also contains limited agricultural areas and rural development (Riverside County, 2003).

The area designated within Riverside County's Palo Verde Valley Area Plan occurs to the east of the Proposed Action and encompasses the developed and agricultural area in eastern Riverside County. The portion of the Palo Verde Valley Area Plan in the vicinity of the Proposed Action



consists mainly of sparsely populated desert and mountain areas. The more populated and agricultural areas occur farther east of the GSEP in the vicinity of Blythe.

The Proposed Action is also located within the CDCA Plan area (BLM, 1980). The CDCA Plan establishes a number of conservation areas under the Wilderness Review Program. The Proposed Action is located adjacent to the southern boundary of the Palen/McCoy Wilderness Area. The Chuckwalla Mountains and Little Chuckwalla Mountains Wilderness Areas are also located farther south-southwest of the Proposed Action.

## 2.2.2 Structure and Facilities

The following sections describe the site arrangement and the processes, systems, and equipment that constitute the generation facilities. All generating facilities would be located within the fence line of each of the alternatives considered. Linear facilities (approximately 6.5 miles in length) related to the Proposed Action located outside the project fence line would include a new 230-kV transmission line, access road and 8-inch natural gas pipeline. The plant would consist of a conventional steam Rankine-cycle power block, two parabolic trough solar fields, an HTF and steam generation system, as well as a variety of ancillary facilities, such as conventional water treatment, electrical switchgear, administration, warehouse, and maintenance facilities.

### Major Components of the Proposed Action

Overall onsite facilities of the Proposed Action include the following major components:

1. Solar field(s);
2. Power block;
3. Internal access roads;
4. Office and parking;
5. LTU (Land Treatment Unit) for bioremediation of HTF-contaminated soil;
6. Maintenance buildings and laydown area; and,
7. Onsite transmission facilities including switchyard.

Each 125 MW power plant (one for the eastern solar field (see Figure 2-6) and one for the western solar field (see Figure 2-7) would consist of:

1. STG (Steam Turbine Generator);
2. SSG (Servicing Scenario Generator) heat exchangers;
3. Surface condenser;
4. Feedwater pumps;
5. Feedwater heaters;
6. Wet cooling tower;
7. Evaporation ponds;
8. Natural gas-fired boilers; and,
9. Solar thermal collection field.

### **Power Plant Civil/Structural Features**

The following describes the civil/structural features of the GSEP (see Figure 2-2).

#### **SSG System, STG and Associated Equipment**

The SSG system design is similar to any “kettle boiler” shell and tube heat exchanger in that the hot HTF is circulated through tubes and the steam is produced on the shell side. The SSG system includes heat exchangers for preheating the condensate, superheating the steam, and reheating steam, in addition to the boiler vessels.

The SSG system, STG, and condenser would be located outdoors and supported on reinforced concrete mat foundations. The STG foundation would include a reinforced concrete pedestal that supports the STG above the surface condenser. The one step-up transformer and generator step-up transformer (GSUT) would be supported on reinforced concrete mat foundations. Balance-of-plant (BOP) mechanical and electrical equipment would be supported on individual reinforced concrete pads. BOP components/materials include piping, valves, cables, switches, etc. not included with major equipment and generally would be installed or erected onsite.

#### **Solar Collector Assemblies (SCA)**

The Proposed Action’s SCAs are oriented north-south to rotate east-west to track the sun as it moves across the sky throughout the day. The SCAs collect heat by means of linear troughs of parabolic reflectors, which focus sunlight onto a straight line of heat collection elements (HCEs) welded along the focus of the parabolic “trough”.

#### **Parabolic Trough Collector Loop**

Each of the collector loops consist of two adjacent rows of SCAs, each row is about 1,300 feet long. The two rows are connected by a crossover pipe. HTF is heated in the loop and enters the header, which returns hot HTF from all loops to the power block where the power generating equipment is located.

#### **Mirrors**

Low-iron glass mirrors are mounted on the SCA. These mirrors are reliable components that have shown no long-term degradation in reflective quality. Twenty-year-old mirrors can be cleaned and brought back to like-new reflectivity. Long-term endurance of the mirror, as measured by the experience at Solar Electric Generating Station (SEGS), indicates mirror life of 30 years or more can be expected for the Proposed Action. Flexible mirror reflectivity monitoring procedures using demineralized water for mirror washing is critical. The periodic monitoring of mirror reflectivity provides a valuable quality control tool for mirror washing and helps to optimize wash labor.

#### **Solar Array Support Structures**

Each solar collector array would be supported by structures (stands) that connect the parabolic troughs to the drive mechanism. Each array would be supported by multiple individual foundations with a foundation located approximately every 40 feet along the array.

**HTF Freeze Protection Heat Exchanger**

The HTF freezes at temperatures below 54 °F. To eliminate the problem of HTF freezing, steam-fed shell and tube heat exchangers would be used to keep the HTF above 100 °F whenever the facility is offline. As discussed above, the auxiliary boilers would supply the heat for this process as well as performing the function of a startup boiler. This dual-use configuration reduces the number of individual emission sources.

**HTF Expansion Tank**

Expansion tanks are required to accommodate the volumetric change that occurs when heating the HTF to the operating temperature. Nitrogen would be used to blanket the headspace of the tanks. The nitrogen purge prevents oxidation or contamination of the HTF by reducing its exposure to atmospheric air.

**HTF Ullage/Flash System**

During plant operation, HTF would degrade into components of high and low boilers (substances with boiling points higher and lower than the HTF). The low boilers are removed from the process as vapors through the system. The high boilers are removed from the process as liquid and sediment through the HTF flash system.

**Auxiliary Boiler**

The auxiliary boiler would be fueled by natural gas and would provide steam for maintaining steam cycle equipment vacuum over night and for startup. Sealing steam is used to prevent air from entering the steam turbine while the condenser is under vacuum. This method reduces startup time for the plant compared to relying on solar-generated steam as the sealing steam source. Unlike a gas-fired power plant, a solar thermal plant must wait for the sun to rise in the morning to start generating steam and has a finite time to generate electricity (i.e., the number of sunlight hours). If the plant does not have a secondary source of steam, plant startup is delayed (and thus total daily electrical generation reduced), while solar heat alone generates sealing steam and vacuum is established in the condenser. Once the plant begins generating electricity for delivery to the electrical grid, the fired auxiliary boiler is no longer needed and is held in stand-by mode until auxiliary heat is again required after plant shutdown. The maximum estimated natural gas usage for the auxiliary boiler is expected to be 60 million standard cubic feet per year, for a maximum of 60,000 British thermal units per year.

**Lighting System**

The Proposed Action's lighting system would provide operations and maintenance personnel with illumination in both normal and emergency conditions. The system would consist primarily of AC lighting, but would include DC lighting for activities or emergency egress required during an outage of the plant's AC electrical system. The lighting system would also provide AC convenience outlets for portable lamps and tools.

**Buildings**

The GSEP would include a common administration building and warehouse between the two 125 MW power plants. A control building would be located in each power block. Other plant site “buildings” would include the water treatment building, as well as a number of pre-engineered enclosures for mechanical and electrical equipment. The total square footage of the various Proposed Action buildings and pre-engineered enclosures (*e.g.*, control rooms, administration building, warehouse, electrical equipment enclosures, fire pumps, and diesel generators) is approximately 39,000 square feet (0.9 acre).

**Fire Protection**

Fire protection systems are provided to limit personnel injury, property loss, and downtime resulting from a fire. The systems include a fire protection water system and portable fire extinguishers.

Each 125 MW power plant’s fire protection water system would be supplied from a dedicated 360,000-gallon portion of the 500,000-gallon raw water storage tank located on the plant site. One electric and one diesel-fueled backup fire water pump, each with a capacity of 3,000 gallons per minute, would deliver water to the fire protection water-piping network for each plant. A smaller electric motor-driven jockey pump would maintain pressure in the piping network. If the jockey pump is unable to maintain a set operating pressure in the piping network, the diesel fire pump starts automatically.

The piping network would be configured in a loop so a piping failure can be isolated with shutoff valves without interrupting the supply of water to a majority of the loop. The piping network would supply fire hydrants located at intervals throughout the power plant site, a sprinkler deluge system at each unit transformer, HTF expansion tank and circulating pump area, and sprinkler systems at the STG, and in the operations and administration buildings. Portable fire extinguishers of appropriate sizes and types would be located throughout the plant site.

Fire protection for the solar field would be provided by zoned isolation of the HTF lines in the event of a rupture that results in fire. As vegetation or other combustible materials would not be allowed in the solar field, the HTF would be allowed to extinguish itself naturally, since the remainder of the field is of nonflammable material (aluminum, steel, and glass).

**Water Storage Tanks**

There would be a number of covered water tanks on site for each 125 MW power plant. For each plant, there would be a 500,000-gallon raw water storage tank for short-term backup cooling water supply, with a portion (360,000 gallons) dedicated to the plant’s fire protection water system; a 1,250,000-gallon treated water storage tank; and a 250,000 waste water storage tank. There also would be a 40,000-gallon storage tank for storage of demineralized water. Please also refer to the discussion on “Water Supply and Consumptive Requirements” found in Section 2.2.4, for more detail on water storage and consumption.

### **Roads, Fencing, and Security**

The GSEP site is located in a remote section of eastern Riverside County, about six miles north of I-10, and approximately 25 miles west of Blythe. All vehicular traffic approaching the site would use I-10. Only a small portion of the overall plant site would be paved, estimated at 10 acres, which would consist primarily of the site access road and portions of each power block (paved parking lot and roads encircling the STG and SSG areas). The entire site would be fenced appropriately to restrict public access during construction and operations.

### **Site Drainage**

As discussed in the Water Resources section (Section 3.21) under the Drainage Erosion and Sediment Control Plan (DESCP), natural drainage across the site is episodic, shallow, and occurs over a broad area primarily as sheet flow or in shallow washes.

The main drainage channels and associated diversion berms of the GSEP would divert flows downstream of the site following their existing drainage paths.

### **Earthwork**

Solar fields have fairly stringent grading requirements as parabolic troughs must be almost level along their troughs, and grades perpendicular to the troughs are generally benched to 2% or less. Under pre-developed conditions, each 125 MW module generally slopes from the northeast to the southwest. Grading for post-developed conditions would slightly modify the existing contours to provide a surface level appropriate for the parabolic troughs. Grading would be balanced and no importing or exporting of materials would be required.

The DESCP includes the finished grade elevations and preliminary contour lines across the entire site. The total site earth work quantities for the Proposed Action site, including the evaporation and retention pond excavations and protective berm fill placement, will result in a balanced cut-and-fill earthwork of approximately 1,000,000 cubic yards of cut and one million cubic yards of fill, based on the preliminary site design and layout (Genesis Solar, LLC, 2010).

### **Transmission Facilities**

#### **Interconnection to GSEP Switchyard (Substation)**

The GSEP switchyard would contain three breakers and three line takeoff structures. It would have space for a future breaker and line takeoff structure. Air insulated structures would be utilized giving the switchyard a size of approximately 270 feet by 400 feet (approximately 2.48 acres). The switchyard and interconnections would be built for 230 kV and would operate at that nominal voltage. The switchyard arrangement is shown in the power block layout general arrangement for Unit 2 (see Figure 2-7).

The generated electrical power from the GSEP switchyard would be transmitted through a gen-tie line that would be routed in a southeasterly ROW eventually connecting to the Southern California Edison (SCE) 500-230 kV Colorado River substation via the existing Blythe Energy Project Transmission Line (BEPTL) between the Julian Hind and Buck substations.

### **Interconnection Design Considerations**

The gen-tie line would be constructed for operation at 230 kV, the nominal operating voltage of the regional transmission system. The use of 230 kV as the targeted design voltage is consistent with the industry use of the 230 kV term to describe the nominal voltage for this class of system. Each circuit would be supported by mono-pole structures at approximately 800-foot intervals with heights ranging in height between 70 and 145 feet.

### ***Ancillary Actions***

#### **Fiber Optics**

Telecommunications services would be provided by a local provider via either fiber optic cable or microwave. Fiber optic cable would be buried in a shallow trench or strung on the power distribution line or gen-tie line, or a combination of both methods within the disturbed areas of the other linear facilities such as the access road under or adjacent to the gen-tie line. (See Figure 2-8)

#### **Power Distribution Line**

Construction power would be provided by the local distribution system and routed to the site along wood poles within the 230 kV ROW. (See Figure 2-8)

### ***Connected Actions***

#### **Colorado River Substation Expansion**

This Proposed Action involves expanding the already approved, but not yet constructed, 500 kV SCE switchyard into a full 500/220 kV substation on approximately 90 acres of land. The expansion project would involve site preparation by clearing existing vegetation and grading, and may involve redirecting surface flows around one side of the substation. An approximate 10-acre staging area adjacent to the expansion site may be necessary for construction. Although detailed engineering, grading and drainage plans are not yet available, it is estimated that the total area subject to permanent disturbance for the substation expansion would be approximately 65 acres (45 acres for substation grading, 20 acres for drainage/side slopes), plus temporary disturbance resulting from a 10-acre staging area.

#### **Transmission System Upgrades**

The Proposed Action will require an interconnection upgrade and telecommunication service at the Colorado River Substation. The California Independent System Operator (CAISO) and SCE have completed both phases of an Interconnection Study report for the Eastern Bulk System Transition Cluster which includes the GSEP. This study defines the impacts on the transmission system and system upgrades that are needed and attributable to all projects in the Eastern Bulk System planning area. SCE and the Applicant will enter into a Large Generator Interconnect Agreement in accordance with the CAISO's tariff.

### Transmission Downstream

The Genesis cluster Phase I Interconnection study indicated that the Proposed Action interconnection to the grid would not result in downstream transmission impacts. Transmission reliability impacts and appropriate mitigation have now been fully identified through the Phase II Interconnection study of projects in the Transition Cluster, including the Genesis project. The Phase II studies indicate that upgrades or replacements of circuit breakers and other equipment will be necessary at 22 downstream substations in the Transition Cluster. If upgrades and mitigations are completed in a timely manner, full deliverability of the project is possible without overloading the system.

## 2.2.3 Construction

This section describes construction of the 1) Power Generation Facility, 2) Civil Works, 3) Generation Transmission Line and 4) Natural Gas Pipeline.

Major milestones of the Proposed Action construction schedule are as follows:

1. Begin construction Unit 1: Month 1
2. Startup and test Unit 1: Month 21
3. Commercial operation Unit 1: Month 25
4. Begin construction Unit 2: Month 12
5. Startup and test Unit 2: Month 33
6. Commercial operation Unit 2: Month 39

Construction for the Proposed Action is expected to occur over a total of 39 months. Proposed Action construction would require an average of 650 employees over the entire construction period, with labor requirements peaking at approximately 1,100 workers in Month 23 of construction.

The construction workforce would consist of laborers, craftsmen, supervisory personnel, support personnel, and construction management personnel. Total number of workers that would be needed for GSEP construction during the peak month (Month 23) are shown in Table 2-2:

### Power Generation Facility

Temporary construction laydown and parking areas would be provided within the power plant site. Construction power would be provided by the local distribution system and routed to the site along wood poles within the 230 kV ROW. Due to the size of the plant site, the solar field laydown area would be relocated periodically as the solar field is built out. The construction sequence for power plant construction includes the following general steps:

**Site Preparation:** this includes detailed construction surveys, mobilization of construction staff, grading, and preparation of drainage features. Grading for the solar field, power block, and rerouted wash would be completed during the first nine months of the construction schedule.

**TABLE 2-2  
GSEP CONSTRUCTION WORKFORCE**

<b>Trade</b>	<b>Total # of Workers for GSEP Construction by Craft – Month 23</b>
Insulators	24
Operating Engineers	60
Laborer	96
Teamsters	38
Painter	15
Carpenter	44
Solar Field Craft	305
Pipe Fitter	200
Electrician	105
Cement Mason	4
Ironworker	70
Millwright	22
Construction Staff	92

**Foundations:** this includes excavations for large equipment (STG, SSG, GSUT, cooling tower, etc.) footings for the solar field and ancillary foundations in the power block.

**Major Equipment Installation:** once the foundations are complete, the larger equipment would be installed. The solar field components would be assembled in an on-site erection facility and installed on their foundations. Equipment and materials would be delivered to the GSEP plant site by truck; large components (e.g., STG) would be brought by rail to a rail siding in the town of Blythe and then are expected to be trucked to the site on I-10.

**Balance of Plant (BOP):** with the major equipment in place, the remaining field work would be piping, electrical, and smaller component installations.

**Testing and Commissioning:** testing of subsystems would be done as they are completed. Major equipment would be tested once all supporting subsystems are installed and tested.

### ***Civil Works***

The construction sequence for civil works includes the following general steps:

**Site Disturbance:** Once all areas are appropriately staked and signed and access to the site has been established, grading activities would occur over an extensive portion of the site. Grading would commence with rough grading activities, including grubbing, clearing, moisture conditioning, bulk grading, and initial compaction. The first ground-disturbing activities to take place would be the initial clearing and grading to prepare the site for the storm water drainage, construction, and equipment foundation pads.

**Site Grading:** The solar pad grading of the site would have an average slope of one to three percent on the north-south direction. Drainage diversion channels and protective berms would also be developed with a balance of cut and fill earthwork.



**Site Drainage:** The post-development sediment/retention basin at the discharge points would provide storm water pollution prevention BMP controls, along with retention time to reduce the peak off-site discharge to match pre-development conditions.

**Internal Road System:** A primary access road would be constructed to the power block area. This road would be 24 feet wide and paved with approximately 3,000 tons of imported asphalt concrete material. Auxiliary roads would be 24 feet wide and use compacted native materials or gravel surface; if applied, gravel would have a minimum depth of 6 inches. A driveway off the primary access road will be constructed to access a second entrance (emergency access gate) to the site.

**Restoration of Temporary Disturbance:** All temporarily disturbed areas would be restored to their preconstruction conditions, as required by the BLM. Temporary access roads used during construction will also be regraded and restored to pre-existing function and grade. BLM-approved seed mixes will be applied to temporarily disturbed areas, as required. No fertilizer will be used during stabilization or rehabilitation activities unless authorized by the BLM. No vegetation will be restored or encouraged within the solar field because of the fire hazard. Vegetation within the LTU area will be controlled to prevent containment from being compromised. When construction of storm water management structures is complete, contours will be carefully restored to the extent feasible.

**Construction Water:** Initial construction water will be provided by well TW2 which is located approximately 6.5 miles southeast of the GSEP site. It is anticipated that this well will have capacity to provide water for pre-construction activities as well as some of the onsite construction activities.

### ***Generator Tie Line***

The gen-tie line would be constructed with crews working continuously along the ROW, with construction of the entire gen-tie line requiring a peak workforce of approximately 34 workers. Gen-tie line construction would include the following activities:

1. Preparation of marshalling yards
2. Access road and spur road construction
3. Clearing and grading of pole sites
4. Foundation preparation and installation of poles
5. Conductor installation
6. Cleanup and site reclamation

Various construction activities would occur during the construction process with several construction crews operating simultaneously at different locations. The following subsections describe in more detail the construction activities associated with the GSEP gen-tie line.

**Marshalling Yards:** Construction staging/laydown and parking areas are proposed for two locations: 1) within the GSEP site, and 2) at the Wiley Well Rest area. Construction materials such as concrete, wire and cable, fuels, and small tools and consumables would be delivered to the staging/laydown areas by truck. Mobile trailers or similar suitable facilities (for example, modular offices) would be used for construction offices to be located at the GSEP staging/laydown areas.

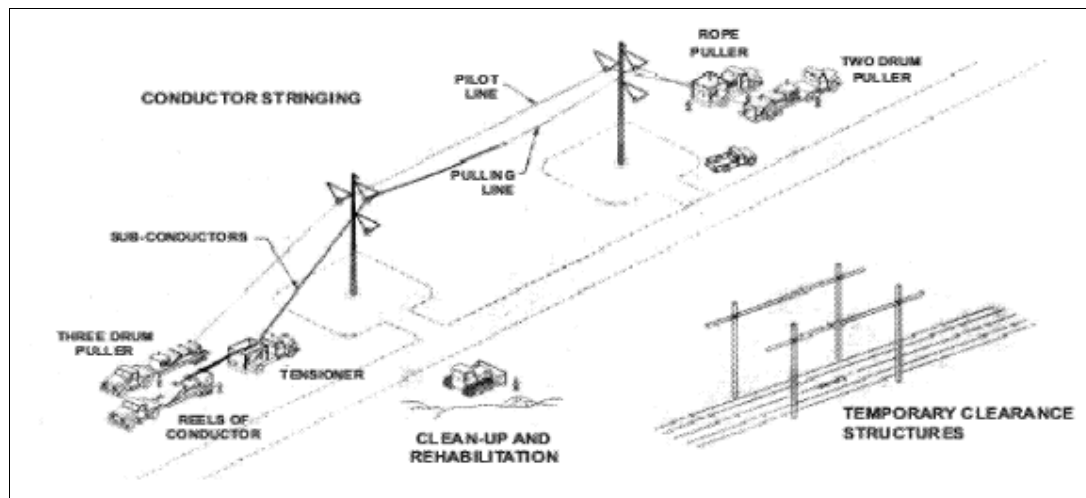
**Road Work:** The construction, operation, and maintenance of the proposed gen-tie line would require that heavy vehicles access structure sites along the road. The GSEP proposes to use the newly constructed site access road and Wiley Well Road for all construction, operation, and maintenance activities associated with the gen-tie line. If required, new spur roads, approximately 14 feet wide and averaging 70 feet in length (approximately 0.02 acre), would be constructed from the access roads to the structure sites. Each spur road would lead to a construction pad for a pole structure.

**Pole Pads:** At each site, a work area would be required for the structure footing location, structure assembly, and the necessary crane maneuvers.

**Pole Erection:** Transmission line pole structure foundation excavations would be made with power drilling equipment. A vehicle-mounted power auger or backhoe would be used to excavate for the structure foundation. Although not expected, in some instances blasting could be necessary because of specific geologic conditions.

**Conductor Installation:** Typical conductor stringing activities are illustrated below. Crossing structures would consist of H-frame wood poles placed on either side of an obstacle. Equipment for erecting the crossing structures would be the same as the equipment discussed above for transmission pole installation. Crossing structures may not be required for small roads or other areas where suitable safety measures such as barriers, flagmen, or other traffic controls could be used.

Pilot lines would be pulled (strung) from structure to structure and threaded through the stringing sheaves at each structure. Following the pilot lines, a larger diameter stronger line would be attached to the conductors to pull them onto the structures. This process would be repeated until the ground wire or conductor is pulled through all sheaves.



SOURCE: AFC, page 3-30.

**Pulling Sites:** The shield wire and conductors would be strung using powered pulling equipment at one end and powered braking or tensioning equipment at the other end, spaced approximately one mile apart. Tensioners and/or pullers, line trucks, wire trailers, and tractors needed for stringing and anchoring ground wire or conductor would be

necessary at each pulling site. The tensioner, in concert with the puller, would maintain tension on the shield wires or conductors while they would be pulled through the structures. There would be approximately 25 pulling sites required to install the conductors along this segment of the gen-tie line. The sites would be accessed from the GSEP access roads or Wiley's Well Road.

**Clean up and Site Reclamation:** Construction sites, material storage yards, and access roads would be kept in an orderly condition throughout the construction period.

The post-construction ROW would be restored as required by the BLM.

### ***Natural Gas Pipeline***

Construction of the gas pipeline would be the responsibility of Southern California Gas (SoCalGas) and is expected to take 3 to 6 months with a peak workforce of approximately 46 workers. Provisions for construction contractor employee parking for the pipeline construction would be accommodated by GSEP at the plant site, except for those supervisory contractor employee and agency inspection vehicles which must be temporarily parked along the route while construction takes place. Most major pieces of pipeline construction equipment would remain along the pipeline ROW during construction with storage and staging of equipment and supplies either located at the GSEP plant site or other acceptable site selected by SCG at the time construction is underway. Excavated earth material would be stored within the construction ROW.

**Trenching:** The optimal trench would be approximately 48 inches wide and 4 to 10 feet deep. With loose soil, a trench up to eight feet wide at the top and three feet wide at the bottom may be required. The trench depth would provide a minimum cover of 36 inches.

**Stringing:** The pipeline components would be staged along the trench on wooden skids in preparation for installation.

**Installation:** Installation consists of bending, welding, and coating the weld-joint areas of the pipe after it has been strung, padding the ditch with sand or fine spoil, and lowering the pipe string into the trench following non-destructive testing of all welds.

**Backfilling:** consists of returning spoil back into the trench around and on top of the pipe, ensuring the surface is returned to its original grade or level.

Trenchless construction methods may be used for short crossings under existing water lines or other buried pipelines. Boring pits would be dug on each side of the crossing to accommodate the process.

## **2.2.4 Operation and Maintenance**

The GSEP would be operated in conformance with public health and safety, environmental and other applicable regulations, guidelines, and conditions adopted or established by:

1. the CEC and specified in the written decision on the Application for Certification;

2. terms and conditions of any approved Right-of-Way (ROW) grant, including the approved Plan of Development (POD); or
3. as otherwise required by law.

The Proposed Action would have a moderate sized workforce during operation. Specifically, it is estimated that a permanent workforce of 40 to 50 full time equivalent personnel would be needed to staff the facility 24 hours per day/seven days per week.

The plant's power cycle is the Rankine-with-reheat thermodynamic cycle. The thermal input is via heated HTF from the parabolic trough solar field at a temperature of approximately 740<sup>o</sup> F.

Overall annual availability for each 125 MW facility is expected to be between 96 to 98 percent of possible operating hours (between 3,000 and 3,200 hours per year). Each plant's capacity factor would depend on the local solar insolation, but has been estimated to be approximately 27 percent, or approximately 300,000 MWh/year. Each 125 MW plant would use the Rankine thermodynamic cycle with reheat described as follows:

**Process 1:** The working fluid (water) is pumped from low to high pressure. During this process, steam extracted from the STG is used to preheat the water prior to entering the SSG system, which increases overall cycle efficiency.

**Process 2:** The high pressure liquid enters the SSG system where it is heated theoretically at constant pressure by the HTF to become superheated steam.

**Process 3:** The superheated steam expands through the high pressure section of the steam turbine, turning the generator to produce electricity. This steam is then reheated in different vessels that are part of the SSG system and sent to the reheat section of the steam turbine. The reheat exhausts into the low pressure (LP) section of the steam turbine.

**Process 4:** The wet steam from the LP section then enters the surface condenser where it is cooled at a constant low pressure to become a saturated liquid. The condensed liquid returns to Process 1.

As the HTF is circulated from the SSG to the solar field, it absorbs solar energy and provides a high temperature (740<sup>o</sup> F) energy source for the Rankine cycle. Waste heat is rejected in Process 4. As the turbine exhaust is condensed, the heat is transferred to the cool circulating water. The warm circulating water carries the heat to the wet cooling tower to be rejected.

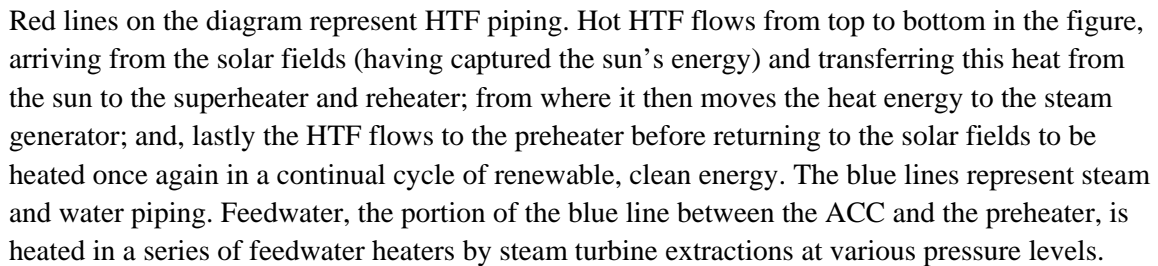
## Power Generation Process

The power generating facility is composed of the following major components:

1. Deaerator;
2. Feedwater pumps;
3. Feedwater heaters;
4. SSG;
5. Steam superheater;

## INSET 2-1

### THE THERMODYNAMIC CYCLE



This section describes the major electrical systems and equipment. Roughly 10 percent of the STG output would be used on-site for plant auxiliary loads such as motors, heaters, control systems, and general facility loads including lighting and heating, ventilation, and air conditioning (HVAC). Some of the power needed for on-site uses would be converted from alternating current (AC) to direct current (DC) for power plant control systems and emergency backup systems. The descriptions of the major electrical systems and equipment provided in the following subsections reflect AC power unless otherwise noted. All electrical facilities equipment will be designed in accordance with applicable codes and standards.

Power would be generated by the STG (size and generation voltage is depending on the final generator selection) and stepped up by a fan-cooled generator step-up transformer (GSUT). Start-up power would be back-fed through the GSUT. Once the STG is running, it would supply the plant auxiliary power through a generator bus tap and the unit auxiliary transformer (UAT).

### ***Grounding***

The electrical system is susceptible to ground faults, lightning, and switching surges that can pose hazards to site personnel and electrical equipment. The station grounding system provides an adequate path to ground to permit the dissipation of current created by these events.

### ***Electrical Generation***

The Proposed Action's STGs would tie into a 230 kV on-site switchyard. The STGs generate electricity at 13.8 kV that would connect to the switchyard at 230 kV via a generator circuit breaker (GCB) and a GSUT.

The plant site switchyard would be located near the Unit 2 power blocks, as shown in Figure 2-7, and would require an overhead 795 thousand circular mils (kcml) size, steel-reinforced, aluminum conductor unit tie line for the connection to both unit's GSUTs.

### ***Fuel Supply and Use***

The auxiliary boilers would be fueled by natural gas supplied from a new 6.5 mile, 8-inch pipeline connected to an existing SoCalGas pipeline located north of I-10. Natural gas delivered to the GSEP site would flow through a revenue quality flow meter, pressure regulation station, and filtering equipment, and would provide gas to the auxiliary boilers for each 125 MW power plant. The estimated natural gas usage for each auxiliary boiler is 30 million British thermal units per hour (MMBtu/hr) or a total of 60 MMBtu/hr for the Proposed Action. The maximum annual natural gas usage is expected to be 60 million standard cubic feet per year (MMSCF/yr) for a maximum of 60,000 MMBtu/year.

### ***Heat Transfer Fluid***

Therminol™ (VP-1), an aromatic hydrocarbon, biphenyl-diphenyl oxide manufactured by Solutia, is currently being considered as the HTF for the Proposed Action. Therminol is a special high-temperature oil that has an excellent operating history and is used in many heat transfer processes. Dowtherm A, an essentially chemically identical product manufactured by Dow, is being considered as an alternative to Therminol™ (VP-1).

## **Water Supply and Consumptive Requirements**

The GSEP's various water uses include makeup for the circulating water system, makeup for the SSG, water for solar collector mirror washing, service water, potable water, and fire protection water.

## **Water Treatment**

The raw water, circulating water, process water, and mirror washing water all require on-site treatment, and this treatment varies according to the quality required for each of these uses. The power plant's design consists of a pre-treatment system upstream of the cooling tower, and a post-treatment system downstream of the cooling tower. Please see the Water Resources section (Section 4.21) for more detailed analysis of this subject.

Water is cycled in the cooling tower until the concentration of chemical constituents rises to levels where it becomes unusable and it is blown down as a waste stream. Circulating water will be modified with chemical treatment to prevent the growth of bacteria, formation of scale, and minimization of corrosion of the wet surface air cooler (WSAC) system. These chemicals include a biocide, scale inhibitor, and corrosion inhibitor.

**Biocide:** An open recirculating cooling system provides a favorable environment for biological growth. If this growth is not controlled, severe biological fouling and accelerated corrosion can occur. Sodium hypochlorite is the most common chemical used for controlling the biological growth, slime, and algae. Sodium hypochlorite is used because it is safer to handle and less likely to precipitate than other chlorine or bromine compounds.

**Scale Inhibitors:** Anti-scalants are surface-active materials that interfere with the precipitation reactions by either threshold inhibition, crystal modification, or dispersion. This enables higher cooling water cycles of concentration and permits operation at "supersaturated" conditions.

**Corrosion Inhibitors:** Corrosion inhibitors may be added to the circulating water to reduce the rate of corrosion of metals or alloys in contact with the water. Circulating water can range from scale-forming to scale-dissolving (corrosive). Changes in the pH and constituents of concern can impact whether or not scale will form and to what extent the water will be corrosive. Corrosion inhibitors such as phosphate and zinc may be added to help reduce corrosion rates.

Pre-treatment of the makeup water to remove concentrations of calcium is desirable to reduce the quantity of makeup water required. The pre-treatment design for the Proposed Action takes into account the relatively high concentrations of chloride and sodium present in the makeup water to the site. There are several tanks on site which would contain the raw water, treated water, and wastewater, which would have the following capacity:

1. Raw Water/Fire Water Storage Tank: 500,000 gallons
2. Treated Water Storage Tank: 1,250,000 gallons
3. Wastewater Storage Tank: 250,000 gallons

## **Water Source and Quality**

GSEP water for the GSEP would come from pumping groundwater from wells to be installed at the GSEP site. These wells would pump groundwater from the Bouse Formation and/or underlying Fanglomerate within the Chuckwalla Valley Groundwater Basin. Please refer to

Sections 3.20 and 4.19 for detailed discussion of current groundwater basin conditions and impacts of the Proposed Action on groundwater basins.

### ***Steam Cycle Process Water***

Makeup water for the steam cycle must meet stringent specifications for suspended and dissolved solids. To meet these specifications, water from the treated water storage tank is sent to a deionized makeup water tank, and then processed through a demineralized water makeup system consisting of mixed-bed demineralizers and a 40,000 gallon demineralized water storage tank. Water produced by this system would also be used for the mirror washing described below. Additional conditioning of the condensate and feedwater circulating in the steam cycle is provided by means of a chemical feed system.

### ***Solar Mirror Washing Water***

To facilitate dust and contaminant removal, deionized (demineralized) water from the demineralized water storage tank is used to spray clean the solar mirrors on a periodic basis, determined by the reflectivity monitoring program. This operation is generally done at night and involves a water truck spraying deionized water on the mirrors in a drive-by fashion. The deionized water production facilities, already in place for SSG makeup water, would be sized to accommodate the additional solar mirror washing demand of about 2 acre-feet per year and is shown on the water balance diagrams. Water from the washing operation is expected to mostly evaporate on the mirror surface with no appreciable runoff.

### ***Potable Water***

A package water treatment system would be used to treat the water to meet potable standards. Water supply would come from the (reverse osmosis (RO)) treatment system, and sanitary wastewater would be discharged to an onsite septic system.

## **Cooling Systems**

Each power plant includes two cooling systems: 1) the steam cycle heat rejection system (*e.g.*, cooling tower); and 2) the closed cooling water system (equipment cooling), each of which is discussed below.

### ***Steam Cycle Heat Rejection System***

The cooling system for heat rejection from the steam cycle consists of a surface condenser, circulating water system, and wet cooling tower. The surface condenser receives exhaust steam from the LP section of the STG and condenses it to liquid for return to the SSG. The surface condenser is a shell-and-tube heat exchanger with wet, saturated steam condensing on the shell side and circulating water flowing through the tubes to provide cooling. The warmed circulating water exits the condenser and flows to the cooling tower to be cooled and reused.

The circulating water is distributed among multiple cells of the cooling tower, where it cascades downward through each cell and then collects in the cooling tower basin. The mechanical draft



cooling tower employs electric motor-driven fans to move air through each cooling tower cell. The cascading circulating water is partially evaporated, and the evaporated water is dispersed to the atmosphere as part of the moist air (plume) leaving each cooling tower cell. As discussed in the Visual Resources section (Section 4.14), because of climatic conditions at the site, visible moisture plumes are expected to occur relatively infrequently and largely in winter months, and no need is expected for a plume-abated cooling tower.

The circulating water is cooled primarily through partial evaporation and secondarily through heat transfer with the air. The cooled circulating water is pumped from the cooling tower basin back to the surface condenser and auxiliary cooling water system.

### ***Auxiliary Cooling Water System***

The auxiliary cooling water system uses water from the cooling tower for the purpose of cooling equipment including the STG lubrication oil cooler, the STG generator cooler, steam cycle sample coolers, large pumps, etc. The water picks up heat from the various equipment items being cooled and rejects the heat to the cooling tower.

## **Waste Management**

GSEP wastes include wastewater, non-hazardous solid waste, and hazardous solid and liquid waste. Detailed descriptions of GSEP waste streams and management details are discussed in the Soil & Water Resources and Waste Management sections of this document.

### ***Wastewater***

Wastewater would be segregated into two separate collection systems, one for industrial streams and one for sanitary wastes. Industrial wastewater from both the pre-treatment and post-treatment systems would be piped to two, 30-acre evaporation ponds for disposal. There would be three primary and one occasional waste streams discharging into the evaporation ponds:

1. Pre-cooling tower water treatment multi-media filter (MMF) waste stream;
2. Post-cooling tower water treatment MMF waste stream;
3. Post-cooling tower water treatment; and,
4. 2nd stage Reversed Osmosis (RO) waste stream.

Occasionally, storm water may accumulate in the proposed Land Treatment Unit (LTU) that would be used to treat soil affected by spills of HTF, and would be transferred to the evaporative ponds.

On an annual average, blowdown to the evaporation ponds would be approximately 90,000 gallons per day for each unit, increasing to approximately 140,000 gallons per day for each unit during peak summer conditions.

The GSEP's sanitary system would collect wastewater from sanitary facilities such as sinks and toilets. This waste stream would be sent to an on-site sanitary waste septic system.

### ***Non-Hazardous Solid Waste***

Construction, operation, and maintenance of the GSEP would generate non-hazardous solid wastes typical of power generation or other industrial facilities. These wastes include scrap metal and plastic, insulation material, paper, glass, empty containers, and other miscellaneous solid wastes.

### ***Hazardous Solid and Liquid Waste***

Small quantities of hazardous wastes would be generated during GSEP construction and operation. Hazardous wastes generated during the construction phase would include substances such as paint and primer, thinners, and solvents. Hazardous solid and liquid waste streams generated during GSEP operations include substances such as used hydraulic fluids, oils, greases, filters, etc., as well as spent cleaning solutions and spent batteries. To the extent possible, both construction and operation-phase hazardous wastes would be recycled. Hazardous materials that would be used during construction include gasoline, diesel fuel, oil, lubricants, and small quantities of solvents and paints.

### ***Evaporation Ponds***

The two ponds are planned to allow plant operations to continue in the event a pond needs to be taken out of service for some reason, *e.g.*, needed maintenance. Each pond would have enough surface area so the evaporation rate exceeds the cooling tower blowdown rate at maximum design conditions and annual average conditions. The average pond depth would be eight feet.

### ***On-site Bioremediation Land Treatment Unit (LTU)***

The Proposed Action would include a bioremediation LTU to treat soil impacted by incidental spills and leaks of HTF at various concentrations. The LTU would cover an area of approximately 600 feet by 725 feet (approximately 9.98 acres), including the staging area, and would accommodate both 125 MW units. The LTU would be constructed with a prepared base consisting of 2 feet of compacted, low permeability, lime treated material and be surrounded on all sides by a minimum 2-foot high compacted earthen berm with slopes of approximately 3:1 (horizontal:vertical). Based on available operation data from other sites, it is anticipated approximately 740 cubic yards (on average) of HTF-affected soil may be treated per year. Larger or smaller quantities could be generated during some years, depending on the frequency and size of leaks and spills.

### ***Engineering Controls***

Engineering controls help to prevent accidents and releases (spills) from moving off site and affecting communities by incorporating engineering safety design criteria in the design of the Proposed Action.

### ***Air Emissions Control and Monitoring***

Operation of the Proposed Action would result in emissions to the atmosphere of both criteria and toxic air pollutants from the proposed auxiliary boilers, fire pump engines, emergency generator

engines, and cooling towers, and fugitive losses from the HTF system. Construction-related emissions would be associated with site disturbance resulting from site preparation and with the typical emissions and associated construction-related activities encountered at any construction site.

## **Plant Auxiliary Systems**

The following-described plant auxiliary systems control, protect, and support the power plant and its operation.

### ***Distributed Control System***

The Distributed Control System (DCS) provides control, monitoring, alarm, and data storage functions for power plant systems.

The DCS is a microprocessor-based system. Redundant capability is provided for critical DCS components such that no single component failure would cause a plant outage.

The DCS is linked to the control systems furnished by the STG supplier and the solar field controls. These data links provide STG control, monitoring, alarm, and data storage functions via the control operator interface and control technician workstation of the DCS.

### ***Cathodic and Freeze Protection Systems***

Cathodic protection systems protect against electrochemical corrosion of underground metal piping and structures. Underground metal piping structures would have cathodic protection as necessary based on soil conditions. Freeze protection systems (heat tracing) would be employed to protect small water and condensate piping systems that cannot be easily drained. Also due to the high freezing temperature of the solar field's HTF (54°F), steam-fed HTF freeze protection heat exchangers would be provided to protect the system during the night hours and colder months.

### ***Service Air and Instrument Air Systems***

The service air system supplies compressed air to hose connections located at intervals throughout the power plant. Compressors deliver compressed air at a regulated pressure to the service air-piping network. The instrument air system provides dry, filtered air to pneumatic operators and devices throughout the power plant. Air from the service air system is dried, filtered, and pressure regulated prior to delivery to the instrument air-piping network.

### ***HTF Leak Detection***

Leak detection of HTF would be accomplished in a combination of ways. Small leaks, possibly at ball joints or other connections, would be located based on daily inspection of the solar field. Those small leaks can then be corrected via repacking of joints or valves or by minor repairs if needed. The ability to isolate loops and sections of the field would allow for quick repairs. In order to identify and react to larger sudden leaks quickly, a combination of remote pressure

sensing equipment and remote operating valves would be put in place for isolation of large areas. Please see the Hazardous Materials section of this document for more details.

### **2.2.5 Decommissioning**

The planned operational life of the GSEP and duration of the ROW grant is 30 years, but the facility conceivably could operate for a longer or shorter period depending on economic or other circumstances. If the GSEP remains economically viable, it could operate for more than 30 years. However, if the facility were to become economically non-viable before 30 years of operation, permanent closure could occur sooner. In any case, WorleyParsons developed and docketed a *Draft Decommissioning and Closure Plan* (February 22, 2010) on behalf of the Applicant to be put into effect when permanent closure occurs. If approved, the solar energy ROW authorization would include a required “Performance and Reclamation” bond to ensure compliance with the terms and conditions of the ROW authorization, consistent with the requirements of 43 CFR 2805.12(g). The “Performance and Reclamation” bond will consist of three components. The first component will be hazardous materials, the second component will be the decommissioning and removal of improvements and facilities, and the third component will address reclamation, revegetation, restoration and soil stabilization. The CEC’s COCs including the decommissioning can be found in Appendix G.

### **Temporary Closure**

If a temporary closure occurs, security would be maintained 24 hours per day at the GSEP. The BLM and other responsible agencies would be notified. Temporary closure activities would differ depending on whether or not a release of hazardous materials is involved.

If there is no actual or threatened release of hazardous materials, a contingency plan would be implemented for the temporary halting of facility operations. The contingency plan would be developed before operations and its purpose is to ensure compliance with all applicable laws, ordinances, regulations, and standards (LORS) and appropriate protection of public health, safety, and the environment. Depending on the expected duration of the temporary shutdown, the contingency procedures implemented may include draining and properly disposing of chemicals from storage tanks and other facility equipment, safe shutdown of all facility equipment, and other measures as needed to ensure protection of onsite workers, the public, and the environment.

If the temporary closure does involve an actual or threatened release of hazardous materials, the procedures followed would be those provided in the Hazardous Materials Business Plan that would be developed for the proposed action. Procedures would include, at a minimum:

1. Measures to control the release of hazardous materials;
2. Notifications required to the appropriate agencies and the public;
3. Emergency response procedures; and
4. Training requirements for GSEP personnel in hazardous materials release response and control.

When all issues related to the hazardous materials release have been resolved, temporary closure would proceed as described above for temporary closure without a hazardous materials release.

## **Permanent Closure**

The procedures provided in the Draft Decommissioning and Closure Plan are developed to ensure compliance with applicable LORS, and to ensure public health and safety and protection of the environment. The Draft Decommissioning and Closure Plan was submitted to the CEC and BLM for review. A final version will also be developed and submitted for review and approval prior to a planned closure.

Security for the GSEP would be maintained on a 24-hour basis during permanent closure. In general, the Final Decommissioning and Closure Plan will address: decommissioning measures for the GSEP and all associated facilities; activities necessary for site restoration/revegetation if removal of all equipment and facilities is needed; recycling of facility components, collection and disposal of hazardous and non-hazardous wastes, and resale of unused chemicals to other parties; decommissioning alternatives other than full site restoration; costs associated with the planned decommissioning activities and where funding would come from for these activities; and conformance with applicable LORS (Solar Millennium 2009a, p. 3-2).

It is assumed that the number and type of workers required for closure and decommissioning activities would be similar to those described above for construction of the GSEP. Also, it is assumed the closure and decommissioning workforce would be drawn from the regional and local area of potential effect. Furthermore, it is assumed that the regional area of potential effect would continue to offer a high number of transient lodging opportunities to serve decommissioning construction employees. Closure and decommissioning of the GSEP would likely require further environmental impact evaluation to determine fiscal and non-fiscal impacts to the action area.

Upon closure the owner of the GSEP shall implement a final Decommissioning and Reclamation Plan. The Decommissioning and Reclamation Plan shall include a cost estimate for implementing the proposed decommissioning and reclamation activities subject to review and revisions from the CPM in consultation with BLM, USFWS and CDFG.

## ***Reclamation Plan***

A plan for reclamation and cost estimate must meet 43 CFR 3809.55 et. seq. Page 5 of BLM's Instructional Memo for Oregon/Washington BLM Policy for 43 CFR 3809 Notice and Plan-level Occupations, 43 CFR 3715 Use and Occupancy and Reclamation Cost Estimates (BLM 2009b) lists the requirements for a reclamation plan as follows:

- (c) Reclamation Plan. A plan for reclamation to meet the standards in 43 CFR 3809.420 with a description of the equipment, devices, or practices proposed for use including, where applicable, plans for:
  - (i) drill-hole plugging;
  - (ii) regrading and reshaping;

- (iii) mine reclamation, including information on the feasibility of pit backfilling that details economic, environmental, and safety factors;
- (iv) riparian mitigation;
- (v) wildlife habitat rehabilitation;
- (vi) topsoil handling;
- (vii) revegetation;
- (viii) isolation and control of acid-forming, toxic, or deleterious materials;
- (ix) removal or stabilization of buildings, structures, and support facilities; and
- (x) post-closure management.”

Page 3 of the Instructional Memo also explicitly requires an estimate of the costs of reclamation, as follows:

“Reclamation Cost Estimate. An estimate of the cost to fully reclaim disturbances created during the proposed operations as required by 43 CFR 3809.552. The reclamation cost estimate must be developed as if the BLM were to contract with a third party to reclaim the operations according to the reclamation plan.”

## **Design Features and Best Management Practices (BMPs)**

### ***General Design Features***

#### **Solar Facilities**

1. The power plant would be designed in conformance with 2007 California Building Code and the applicable wind and seismic criteria for site location.
2. Sensitive Proposed Action facilities (*e.g.*, power block, evaporation pond) would be placed at specific on-site locations that avoid mapped fault zones.
3. The design and construction of the administration building and warehouse would be consistent with normal building standards.
4. Building columns would be supported on reinforced concrete mat foundations or individual spread footings and the structures would be placed on reinforced concrete slabs.
5. Foundation design for solar array support structures would be based on site-specific geotechnical conditions to ensure the solar array stands would be able to support all loading conditions (including wind loading) at the GSEP site.
6. Water storage tanks would be vertical, cylindrical, field-erected steel tanks supported on foundations consisting of either a reinforced concrete mat or a reinforced concrete ring wall with an interior bearing layer of compacted sand supporting the tank bottom.
7. Facility lighting would be designed to provide the minimum illumination needed to achieve safety and security objectives and would be shielded and oriented to focus illumination on the desired areas and minimize additional nighttime illumination in the site vicinity.

### **Earthwork and Drainage**

1. Channels and diversion berms would be:
  - a. designed to allow passage of anticipated 100-year stormflows and entrained sediment volumes;
  - b. armored as necessary for erosion protection using natural gravel derived during site grading activities; and
  - c. maintained periodically or after major storm events as needed to sustain their proper function.
2. A comprehensive site drainage plan was developed in consultation with other public agencies which resulted in a determination on jurisdiction of waters of the U.S.
3. Channels and diversion berms would be designed to:
  - a. prevent interaction between off-site storm and on-site storm water;
  - b. allow natural groundwater recharge of the off-site storm water with no contact with the changed flow conditions of the on-site water;
  - c. protect the site infrastructure from flash flood events;
  - d. control treatment of the on-site flows from the solar collector array (location of HTF within the solar parabolic troughs);
  - e. protect the site from upstream sediment loading; and
  - f. control on-site flows in detention basins to ensure there is no increase in post developed flow discharging from the site and minimize the impact on downstream drainage features (lake playas, etc).
4. On-site storm water management, through use of source control techniques, site design, and treatment, would employ a comprehensive system of management controls, including site-specific Best Management Practices (BMPs), to minimize storm water contact with contaminants and thus minimize pollutants in storm water. Management includes, but is not limited to, control of erosion, sediment, and wind erosion, minimizing non-storm water discharge; monitoring and maintenance of the stormwater control system; and waste management.
5. Preliminary grading is designed to ensure that run-off from solar fields is directed into the appropriate drainage channel and that the power block, evaporation ponds, and land farm units are protected in the 100-year, 24-hour storm event.

### **Power Generation, Interconnection and Transmission**

1. Instrument transformers (current and capacitive voltage transformers) would be included for protection.
2. Shield wires and lightning arrestors would be included to protect substation equipment and personnel against lightning strikes.
3. Conductors would be insulated from the poles using porcelain insulators engineered for safe and reliable operation at a worst-case voltage of 241.5 kV (nominal, plus five percent).

4. Shield wires would be included along the length of the lines to protect against lightning strikes (see the Transmission Line Safety Nuisance and Transmission System Engineering sections of this document).
5. Pole designs would be engineered to provide conceptual design limits for purposes of the electromagnetic field (EMF) studies and in accordance with the current Blythe-Julian Hinds structures.

## **Construction**

### **Civil Works**

1. Temporary drainage ditches and berms would be designed around construction work areas, soil stockpile areas, and excavation areas to minimize the amount of potential pollutant or sediment-laden surface water runoff.
2. Each solar pad would be graded with the intent of balancing the cut-and-fill as much as possible to minimize earth movement on the site.
3. The road berms would be constructed to provide site protection from storm water run-on during a 100-year return interval storm event.
4. If necessary, the “toe” of the western protective berm slope would be armored with soil cement cover and rip rap to provide to protect against slope erosion during a heavy storm event.

### **Transmission Line**

1. Work area for the pole pads would be cleared of vegetation only to the extent necessary and the construction pad would be leveled to facilitate the safe operation of equipment such as construction cranes.
2. In the unlikely event blasting would be necessary, conventional or plastic explosives and safeguards such as blasting mats would be used.
3. Crossing structures would be used where necessary to prevent ground wire, conductors, or equipment from falling on an obstacle during construction and would be removed following the completion of conductor installation.
4. Pole erection may be accomplished through the use of helicopters to minimize or otherwise eliminate the need to traverse the ROW along the ground from structure to structure.

### **Gas Line**

1. During nonworking hours, any open trench would be covered with wood or other material of sufficient strength to support wildlife.
2. Backfill would be compacted to protect the stability of the pipe and minimize subsequent subsidence.
3. The gas pipeline would likely be pressure tested with water. However, the contractor may choose to air test with nitrogen if allowed by applicable regulations. The source of the water would be the test well near Wiley's Well rest stop. An estimated 5,000 to 6,000 gallons of water would be used for testing the integrity of the gas line. Once the test is completed, a



small amount of water would be released, and samples would be sent to a lab to analyze for hazardous constituents that sometimes are present as a result of the manufacturing process of the pipeline. If the water contains hazardous constituents above water quality standards, it would be put into a tanker truck and taken off site to an appropriate disposal facility. If water quality is within acceptable discharge standards, it will be distributed on the access road or some other nearby area for dust control in compliance with regulatory standards.

## **Operations**

### **Site Security**

1. Security for the GSEP facility would be maintained 24 hours a day, 7 days a week regardless of whether the plant is in operation (generating power) or not.
2. In order to ensure that the facility site is not the target of unauthorized access, site security measures would be implemented. These measures would provide appropriate levels of security to protect electrical infrastructure from malicious mischief, vandalism, or domestic/foreign terrorist attacks.

### **Solar Generation Facility**

1. No vegetation would be restored or encouraged within the solar field because of the fire hazard.
2. The switchyard station ground grid would be designed for adequate capacity to safely dissipate ground current.
3. The GSUT would rest on a concrete pad with a perimeter berm designed to contain the transformer non-polychlorinated biphenyl 1 (PCB) insulating oil in the event of a leak or spill.
4. Lightning arresters would be provided in the area of the takeoff towers to protect against surges due to lightning strikes. Tubular aluminum alloy bus would be used in the switchyard.

### **Gas Line**

1. Safety pressure relief valves would be provided downstream of the pressure regulation valves.

### **Water Storage**

1. Water tanks would be sized to provide sufficient water to support operation of the plant during peak operating conditions, as well as provide a 12-hour storage capacity to enable continued operation when a failure interrupts water or wastewater treatment capabilities.
2. Water tanks also allow the plant to “level” the water supply requirements on a 24-hour basis to protect against midday demand peaks.

### **Waste Management**

1. Procedures to be taken in the event of an actual or threatened release of hazardous materials would include, but not be limited to, the following:

- a. measures to control the release of hazardous materials;
  - b. requirements for notifying the appropriate agencies and the public;
  - c. emergency response procedures; and
  - d. training requirements for GSEP personnel in hazardous materials release response and control.
2. Engineered safety features proposed by the applicant for use at the GSEP include:
  - a. storage of small quantity hazardous materials in original, properly labeled containers;
  - b. construction of secondary containment areas surrounding each of the bulk hazardous materials storage areas, designed to contain accidental releases that might happen during storage or delivery plus the volume of rainfall associated with a 25-year, 24-hour storm;
  - c. physical separation of stored chemicals in isolated containment areas in order to prevent accidental mixing of incompatible materials, which could result in the evolution and release of toxic gases or fumes;
  - d. installation of a fire protection system for hazardous materials storage areas; and
  - e. continuous monitoring of HTF piping system by plant staff and by automatic pressure sensors designed to trigger isolation valves if a leak is detected.
3. Septic system would be designed and permitted in accordance with local building standards, and maintained according to accepted standard procedures.
4. Non-hazardous solid materials would be disposed of by means of contracted refuse collection and recycling services.
5. All hazardous materials used during construction and operation would be stored on site in storage tanks, vessels and containers that are specifically designed for the characteristics of the materials to be stored; as appropriate, the storage facilities would include the needed secondary containment in case of tank/vessel failure. MSDS sheets would be retained onsite for all hazardous materials stored onsite.

#### **Evaporation Ponds and LTU**

1. Evaporation ponds would be designed and permitted as Class II Surface Impoundments in accordance with Colorado River Regional Water Quality Control Board (CRRWQCB) requirements, as well as the requirements of the California Integrated Waste Management Board (CIWMB).
2. Residual precipitated solids would be removed approximately every 7 years to maintain a solids depth no greater than approximately 3 feet for operational and safety purposes.
3. Precipitated solids would be sampled and analyzed to meet the characterization requirements of the licensed receiving disposal facility.
4. The LTU would be designed and permitted as a Class II LTU in accordance with CRRWQCB and CIWMB requirements.
5. Vegetation within the LTU area would be controlled to prevent containment from being compromised.

6. A Preliminary Closure and Post-Closure Maintenance Plan for the evaporation ponds and LTU would be submitted to the Colorado River Regional Water Quality Control Board with the application for a Report of Waste Discharge (RoWD).

### ***Clean Up/Restoration***

1. Temporary access roads used during construction would be re-graded and restored to pre-existing function and grade.
2. BLM-approved seed mixes would be applied to temporarily disturbed areas, as required.
3. General cleanup would include, but not be limited to, restoring the surface of the ROW by removing any construction debris, grading to the original grade and contour, and re-vegetating or repairing where required.
4. No fertilizer would be used during stabilization or rehabilitation activities unless authorized by the BLM.
5. When construction of storm water management structures is complete, contours would be carefully restored as required by BLM.
6. Any topsoil identified and sequestered during construction and operations would be spread onsite during reclamation.

### ***Closure***

#### **Decommissioning and Reclamation Plan**

1. Prior to beginning permanent closure activities, a Closure, Decommissioning and Restoration Plan (Plan) would be developed to ensure compliance with applicable LORS, and to ensure public health and safety and protection of the environment. The Plan would be submitted to the CEC and BLM for review and approval prior to a planned closure.
2. The Plan for decommissioning measures for the power plant and all associated facilities constructed as part of the Proposed Action would include, but not be limited to, identifying:
  - a. activities necessary for site reclamation;
  - b. a schedule of activities for closure of the power plant site, transmission line corridor, and all other appurtenant facilities constructed as part of the Proposed Action;
  - c. provisions for recycling facility components, collection and disposal of wastes, and resale of unused chemicals back to suppliers or other parties;
  - d. costs associated with the proposed decommissioning and reclamation activities and the source of funds to implement these activities; and
  - e. conformance with applicable LORS and with local/regional plans.
3. During permanent closure, the BLM, CEC and other responsible agencies would be notified of the decommissioning schedule and plans.
4. Prior to submittal of an amended or revised Closure, Decommissioning and Restoration Plan, a meeting would be held between the GSEP owner, BLM and CEC for the purpose of discussing the specific contents of the plan.

**Temporary Closure**

1. A Contingency Plan would be developed prior to the beginning of operations to ensure compliance with all applicable Laws, Ordinances, Regulations, and Standards (LORS) and appropriate protection of public health, safety, and the environment in the event of an unplanned shutdown.
2. Depending on the expected duration of a temporary shutdown, the Contingency Plan may include draining and proper disposal of chemicals from storage tanks and other facility equipment; safe shutdown of all plant equipment; and various other measures to protect onsite workers, the public, and the environment.
3. If the evaporation ponds or LTU require closure, either permanent or temporary, the approved Closure and Post-Closure Maintenance Plan would be implemented.

**2.2.6 Action Alternatives****Land Use Plan Amendment Alternative-Reduced Acreage Alternative**

The Reduced Acreage Alternative would essentially be Unit 1 (or one-half) of the Proposed Action, including a 125 MW solar facility located within the boundaries of the Proposed Action as defined by NextEra. This alternative is analyzed for two major reasons: (1) it eliminates about 50 percent of the proposed Proposed Action area so all impacts would be reduced, and (2) it would reduce the water required for wet cooling by 50 percent. The boundaries of the Reduced Acreage Alternative are shown in Figure 2-3. As with the proposed GSEP, a land use plan amendment to the California Desert Conservation Area (CDCA) Plan of 1980 would be required before BLM could issue the ROW grant for the Reduced Acreage Alternative.

The Reduced Acreage Alternative would have a net generating capacity of approximately 125 MW and would occupy approximately 900 acres of land. This alternative would retain 50 percent of the Proposed Action's generating capacity, and would affect 50 percent of the land affected by the Proposed Action. Specifically, the alternative would retain the Unit 1 solar field, including the construction parking, construction trailers, and temporary construction laydown area; the administration building and warehouse; the solar collector assembly area; the western evaporation pond area (approximately 24 acres); and the land farm area (approximately 10 acres). The alternative would require relocating the switchyard, from the Unit 2 power block to the Unit 1 power block. The eastern evaporation pond area (approximately 24 acres) that corresponds with Unit 2 would not be included in the Reduced Acreage Alternative. This area could be used for the relocated gas yard if needed.

Similar to the Proposed Action, the Reduced Acreage Alternative would transmit power to the grid through the Colorado River Substation. It would require infrastructure including groundwater wells, a transmission line, road access, an administration building, and evaporation ponds. The required infrastructure and transmission line for the Reduced Acreage Alternative would follow the routes defined for the Proposed Action, even though Unit 2 would not be constructed. The linear facilities would require approximately 90 acres. The gas pipeline would be approximately 1 mile longer than for the proposed Proposed Action.

Dry cooling is being evaluated as an alternative to the Proposed Action, so it could also be used with this 125 MW configuration. However, if wet cooling were used, cooling would require approximately 822 acre-feet of water per year.

According to the Applicant, independent studies have indicated a 250 MW size project is an optimal size where economies of scale and the potential for excess parasitic losses balance out. However, no evidence has been provided to demonstrate this, and solar thermal facilities as small as 20 MW are currently proposed in California. A detailed cost-benefit analysis for a reduced-size project would be required in order to determine the economic feasibility of this alternative. The Applicant also states that there is no substantial environmental advantage to a smaller size project (GSEP 2009a).

## **Land Use Plan Amendment Alternative-Dry Cooling Alternative**

There are two types of dry cooling systems: direct dry cooling and the lesser used indirect dry cooling. In both systems, fans blow air over a radiator system to remove heat from the system via convective heat transfer (instead of once-through cooling or evaporative heat transfer). In the direct dry cooling system, also known as an air-cooled condenser (ACC), steam from the steam turbine exhausts directly to a manifold radiator system that rejects heat to the atmosphere, condensing the steam inside the radiator. Direct dry cooling is analyzed as the alternative to the wet cooling proposed by NextEra for the GSEP (see Figure 2-9).

### ***Cooling Systems***

The Dry Cooling Alternative power plant includes two cooling systems: 1) the air-cooled steam cycle heat rejection system, and 2) the closed cooling water system for ancillary equipment cooling, each of which is discussed below.

#### **Steam Cycle Heat Rejection System**

The cooling system for heat rejection from the steam cycle consists of an ACC, which receives exhaust steam from the low-pressure section of the STG and condenses it to liquid for return to the SSG.

#### **Auxiliary Cooling Water System**

The auxiliary cooling water system uses a WSAC for cooling ancillary plant equipment, including the STG lubrication oil cooler, the STG generator cooler, steam cycle sample coolers, large pumps, and other ancillary equipment. In a WSAC system, warm process fluids or vapors are cooled in a closed-loop tube bundle (the process fluid being cooled never comes in contact with the outside air). Open loop water is sprayed and air is induced over the tube bundle resulting in the cooling effect.

### ***Advantages and Disadvantages of Dry Cooling***

Dry cooling is the best choice of cooling technologies for a steam power plant to conserve water and minimize wastewater. However, this technology can create both environmental and economic

concerns, depending on the location and specific situation. The following is a summary of the advantages and disadvantages of dry cooling for the GSEP.

### **Advantages of Dry Cooling Systems**

1. Dry cooling allows a power plant location to be less dependent on a water source. It would allow the use of substantially less water and would reduce operation use of water from 800 AFY to approximately 101 AFY per 125 MW power block in a water-constrained environment (GSEP 2009f).
2. Dry cooling minimizes the use of water treatment chemicals.
3. Dry cooling minimizes the generation of liquid and solid wastes.
4. Dry cooling does not generate visible plumes that are commonly associated with wet cooling towers.
5. Impacts to groundwater-dependent biological resources, expected to be substantial under the Proposed Action, would be reduced using dry cooling technology.
6. Potential impacts to other groundwater users in the basin, would be reduced.
7. Dry cooling minimizes the need for disturbance of wetland/aquatic substrate habitat.
8. Dry cooling is consistent with the State's water policy.

### **Disadvantages of Dry Cooling Systems**

1. Dry cooling requires air-cooled condensers that can have negative visual effects.
2. Compared to once-through cooling, dry cooling requires the disturbance of a larger area for the air-cooled condensers than that required for cooling towers. However, at the GSEP site the air-cooled condensers would be located entirely within the previously disturbed project footprint so would not require any additional ground disturbance.
3. Dry cooling can have noise impacts that are greater than once-through or wet cooling systems because of the number of fans and the considerably greater total airflow rate.
4. Using dry cooling, the power plant steam cycle efficiency and output can be slightly reduced, depending on site conditions and seasonal variations in ambient conditions. Also, extra power is needed to operate the cooling fans; dry cooling will increase on-site electrical demand by 2% of STG output, resulting in roughly 12% of the STG output being used on-site.
5. Capital costs for building air-cooled condensers are generally higher than capital costs for once-through cooling; however, in this case, the evaluated installed cost difference between wet and dry cooling was less than 1 percent (GSEP 2009f).

### ***Description of the Air Cooled Condensers***

In order to compare the performance and impacts of a dry cooling system or ACC with that of the wet-cooled system, the operating conditions at a common design point must be established. The design and operation of an ACC are highly dependent upon the ambient conditions at a specific site.

### **Size, Configuration, and Layout**

The size of an ACC is a function of the heat load from the steam turbine generator and the ambient conditions. The ACC is composed of tube bundles with fins attached to the tubes to enhance heat transfer to the air. These bundles are grouped together and mounted in an A-frame configuration on a steel support structure. These A-frame tube bundles are aligned in rows or bays. Steam is ducted directly from the steam turbine exhaust to the ACC where it enters in a parallel flow into the tubes across the top of the bays. Air is blown from below across the finned tube bundles by a series of large fans, which are located beneath the A-frame tube bundles. Each fan is considered a module. To accommodate the large mass of air required for cooling the steam, the A-frame tube bundles are elevated on top of an open structure. As the steam passes down through the tube bundles, it is condensed and drains by gravity flow into a tank from which it is pumped back to the steam turbine. Since the steam is exhausted directly from the steam turbine generator after it has expanded through the turbine, it is at both a very low pressure and large volume. This condition limits the distance that the ACC can be located from the steam turbine generator, due to the drop in pressure that results during the transport of the steam; this limitation must be taken into consideration when configuring the plant layout.

Figure 2-10 and Figure 2-11 show the approximate size and location of the ACC on the power block layout for Unit 1 and Unit 2, respectively.

Approximately 18 ACC fans would be required for cooling each 125 MW power block when the ambient temperature is above 50 degrees Fahrenheit (GSEP 2009f). The 18 ACC fans described in the GSEP cooling study would have a length of approximately 279 feet, a width of approximately 127 feet, and a height of 98 feet (GSEP 2009f). However, based on the ACC preliminary designs for nearby solar thermal projects in similar ambient temperatures, an additional 11,690 square feet could be required for siting of the fans and the fans would be up to 120 feet in height.

### ***GSEP Construction***

The Dry Cooling Alternative construction timeline is slightly less when compared to the Proposed Action (37 months compared to 39 months, respectively). The Dry Cooling Alternative construction is expected to occur over a total of 37 months. The Dry Cooling Alternative construction will require an average of 650 employees over the entire 37-month construction period, with manpower requirements peaking at approximately 1,100 workers in Month 25 of construction. The construction workforce will consist of laborers, craftsmen, supervisory personnel, support personnel, and construction management personnel.

Construction of each 125 MW Unit is expected to take approximately 25 months with each unit being phased by 12 months:

1. Begin pre-construction Unit 1: Month 1
2. Begin Construction Unit 1: Month 4
3. Startup and test Unit 1: Month 24
4. Commercial operation Unit 1: Month 28

5. Begin construction Unit 2: Month 15
6. Startup and test Unit 2: Month 36
7. Commercial operation Unit 2: Month 40

### **Water Use and Requirements**

In addition to the ACC fans, the Applicant would use a small WSAC when needed to provide auxiliary cooling during extremely hot days (GSEP 2009f). The proposed wet cooling towers and associated equipment would occupy an area of about 420 feet long by 60 feet wide. While the ACCs would require about 40 to 50 percent more land area than the proposed wet cooling towers, from the site layout, it appears that such a system would fit in the approximate current location of the cooling tower as there is unused space between the power block and the solar collector assembly (GSEP 2009a). This unused space would be graded as it is designed to be used for construction parking and construction trailers.

Water for WSAC cooling make-up, process water make-up, and other industrial uses such as mirror washing will be supplied from on-site groundwater wells, which will also be used to supply water for employee use (*e.g.*, drinking, showers, sinks, and toilets). A package water treatment system will be used to treat the water to meet potable standards. A sanitary septic system and on-site leach field will be used to dispose sanitary wastewater.

GSEP water blowdown and waste water will be piped to lined, on-site evaporation ponds. Each 125-MW power plant will have an individual, five-acre evaporation pond. The ponds will be sized to retain approximately twenty years worth of solids and will be cleaned out periodically during the life of the plant to ensure the solids do not reach a depth greater than approximately three feet. Dewatered residues from the ponds will be sent to an appropriate off-site landfill as non-hazardous waste. Table 2-3 summarizes the differences between the Proposed Action and the Dry Cooling Alternative with respect to the evaporation ponds.

**TABLE 2-3  
PROPOSED ACTION AND DRY COOLING ALTERNATIVE  
EVAPORATION PONDS**

<b>Element</b>	<b>Proposed Action</b>	<b>Dry Cooling Alternative</b>
Evaporation pond size, per power plant (acres)	30	5
Residue (tons per year)	7150	400
Removal frequency (years)	7	20

To prevent the growth of bacteria, formation of scale, and corrosion of the WSAC system, the Applicant would use biocide, scale inhibitor, and corrosion inhibitor chemicals. The quantity of chemicals used, however, would be less than those needed for the Proposed Action.

Table 2-4 below summarizes the expected annual typical water usage for the GSEP Dry Cooling alternative.



**TABLE 2-4  
TYPICAL WATER USAGE ESTIMATE**

<b>Water Use</b>	<b>Annualized Average Rate<sup>a</sup> (gpm)</b>	<b>Estimated Peak Rate<sup>b</sup> (gpm)</b>	<b>Estimated Annual Use (acre-feet)</b>
Plant Operation	125	256	202
Potable water	10	10	16

<sup>a</sup> The estimated groundwater usage in gallons per minute is based on an average daily consumption for (2) 125 MW power plants.

<sup>b</sup> The "peak" rate is the instantaneous maximum for summer usage for (2) 125 MW power plants.

### ***Description of the Water Storage Tanks***

1. Raw Water/Fire Water Storage Tank: 700,000 gallons
2. RO Feed Tank: 265,000 gallons
3. Treated Water Storage Tank: 200,000 gallons
4. Demineralized Water Storage Tank: 145,000 gallons
5. Wastewater Storage Tank: 155,000 gallons

Tanks were sized to provide sufficient water to support operation of the plant during peak operating conditions, as well as provide a 12-hour storage capacity to enable continued operation when a failure interrupts water or wastewater treatment capabilities. The tanks also allow the plant to levelize water supply requirements on a 24-hour basis and eliminate midday demand peaks. The Raw Water/Fire Water Storage Tank provides water for plant operation and fire protection.

Wastewater is segregated into two separate collection systems, one for industrial streams and one for sanitary wastes. Industrial wastewater from both the wastewater treatment systems will be piped to evaporation ponds for disposal. The evaporation ponds make up a total combined area of five acres for each 125 MW unit (10 acres of pond for both 125 MW units). There are three primary and one occasional waste streams discharging into the evaporation ponds:

1. Wastewater treatment microfilter waste stream
2. Wastewater treatment RO waste stream
3. Wastewater from the service water users oil/water separator
4. Occasionally, storm water accumulated in the proposed LTU that will be used to treat soil affected by spills of HTF

On an annual average, discharge into the evaporation ponds will be approximately 43,000 gallons per day for each unit, increasing to approximately 44,000 gallons per day for each unit during peak summer conditions.

### ***Economic Feasibility***

As stated above, a NextEra project objective was to use a site that would allow wet cooling in order to optimize power generation efficiency and reduce project cost. Wet-cooling maximizes

power plant fuel efficiency by providing a continuous source of effective cooling for the plant's steam condensers. Dry cooling will typically provide less effective cooling of the condensers, reducing the efficiency of the steam cycle portion of the power plant, and thus the overall fuel efficiency of the facility. However, on July 12, 2010, NextEra formally accepted the Dry Cooling Alternative as a viable alternative for the development of the GSEP (NextEra 2010).

## **2.3 No Action Alternatives**

BLM's alternatives related to the No Action Alternative and the Plan Amendment are the following:

### **No Action Alternative A**

Under this No Action Alternative, the ROW application would be denied, and the ROW grant would not be authorized. The CDCA (1980, as Amended) would not be amended.

### **Land Use Plan Amendment Alternative - No Action Alternative B**

Under this No Action Alternative, the ROW application would be denied, and the ROW grant would not be authorized. The CDCA (1980, as Amended) would be amended to identify the Proposed Action application area as unsuitable for any type of solar energy development.

### **Land Use Plan Amendment Alternative - No Action Alternative C**

Under this No Action Alternative, the ROW application would be denied, and the ROW grant would not be authorized. The CDCA (1980, as Amended) would be amended to identify the Proposed Action application area as suitable for any type of solar energy development.

## **2.4 Comparison of Impacts by Alternative**

See Table 2-5 below.

## **2.5 Preferred Alternative**

The BLM has selected the Dry Cooling Alternative as the agency's Preferred Alternative because the Dry Cooling Alternative would reasonably accomplish the purpose and need for the Proposed Action while fulfilling BLM's statutory mission and responsibilities, giving consideration to economic, environmental, technical, and other factors. The only difference between the Proposed Action and the Dry Cooling Alternative is the cooling method employed. Impacts will be the same or similar for most environmental resources with the exception of a substantial decrease in water consumption for the Dry Cooling Alternative compared to the Proposed Action.

**TABLE 2-5  
SUMMARY OF IMPACTS BY ALTERNATIVE**

Resource	ALTERNATIVES					
	Proposed Action	Dry Cooling Alternative	Reduced Acreage Alternative	No Action Alternative	No Project Alternative B	No Project Alternative C
Air	<ul style="list-style-type: none"> <li><i>Construction:</i> NOx=182 tons/yr; VOC=46 tons/yr; CO=363 tons/yr; PM10=41 tons/yr; PM2.5=16 tons/yr; and Sox=0.47 tons/yr</li> <li><i>Operations:</i> NOx= 3 tons/yr; VOC=16 tons/yr; CO=7 tons/yr; PM10=21 tons/yr; PM2.5=7; tons/yr; and Sox=0.02 tons/yr</li> <li><i>Decommissioning:</i> Comparable in type and magnitude, but likely to be lower than, the construction emissions</li> </ul>	Slightly higher construction emissions; 3.8-tons per year reduction in operational particulate emissions; slightly lower operational emissions.	Similar to the Proposed Action	Likely delayed impact similar to the Proposed Action. Required acreage could be less, approximately the same, or more than the Proposed Action.	No impact, or impact specific to a future use other than solar energy generation.	Short term: no impact Long term: Similar to Proposed Action
Global Climate Change	<ul style="list-style-type: none"> <li><i>Construction:</i> GHG: 52,974 CO<sub>2</sub>-Equivalent and loss in carbon uptake of about 2,584 MT of CO<sub>2</sub> per year due to vegetation removal</li> <li><i>Operations:</i> 4,133 CO<sub>2</sub>-Equivalent</li> <li><i>Decommissioning:</i> Comparable in type and magnitude, but likely to be lower than, the construction emissions</li> </ul>	Slightly reduced from the Proposed Action	Approximately 50% less than the Proposed Action	Likely delayed impact similar to the Proposed Action. Required acreage could be less, approximately the same, or more than the Proposed Action.	No impact, or impact specific to a future use other than solar energy generation.	Similar to the Proposed Action
Cultural	<ul style="list-style-type: none"> <li>27 sites considered to be significant (12 prehistoric and 15 historic)</li> <li>Possibly additional resources yet to be discovered during construction</li> <li>The integrity of setting and integrity of feeling of two potential archaeological/historic landscapes</li> </ul>	Same as Proposed Action	Impacts are reduced to 20 known sites.	Likely delayed impact similar to the Proposed Action. Required acreage could be less, approximately the same, or more than the Proposed Action.	No impact, or impact specific to a future use other than solar energy generation.	Similar to the Proposed Action. Required acreage could be less, approximately the same, or more than the Proposed Action.
Environ-mental Justice	No Impact	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Lands and Realty	<ul style="list-style-type: none"> <li>Minimal and mitigable impacts to designated corridors and Interstate 10 from overhead gen-tie power line and underground pipeline crossing.</li> <li>No impacts to existing uses.</li> </ul>	Similar to the Proposed Action	Similar to the Proposed Action	Likely delayed impact similar to the Proposed Action. Required acreage could be less, approximately the same, or more than the Proposed Action.	No impact, or impact specific to a future use other than solar energy generation.	Similar to the Proposed Action. Required acreage could be less, approximately the same, or more than the Proposed Action.
Livestock Grazing	No Impact	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action

**TABLE 2-5 (Continued)**  
**SUMMARY OF IMPACTS BY ALTERNATIVE**

Resource	ALTERNATIVES					
	Proposed Action	Dry Cooling Alternative	Reduced Acreage Alternative	No Action Alternative	No Project Alternative B	No Project Alternative C
Minerals	No Impact	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Multiple Use Classes	<ul style="list-style-type: none"> <li><i>Construction:</i> 1800 acres of MUC Class M (Moderate) affected.</li> <li><i>Operations:</i> restriction of multiple use opportunities on the site to a single dominant use.</li> </ul>	Same as Proposed Action	Approximately 50% less than the Proposed Action	No Impact; similar impacts if other utility-scale solar power facilities built in future.	No Impact.	Same as Proposed Action.
Noise	<ul style="list-style-type: none"> <li><i>Construction:</i> short-term elevated noise levels at the prisons nine miles from the GSEP site would occur associated with high pressure steam blow.</li> <li><i>Operations:</i> No impact; no sensitive noise receptors within 5 miles; at 5 miles, noise levels would be approximately 30 dBA.</li> </ul>	Similar to the Proposed Action, though slightly reduced.	Similar to the Proposed Action as there are no noise sensitive receptors in the vicinity.	Similar to the Proposed Action	Similar to the Proposed Action	Similar to the Proposed Action
Paleontological	<ul style="list-style-type: none"> <li><i>Construction:</i> Damage and/or destruction of paleontological resources; possible net gain to the science of paleontology depending on fossils found.</li> <li><i>Operations:</i> No Impact.</li> <li><i>Decommissioning:</i> No Impact.</li> </ul>	Same as Proposed Action	Approximately 50% less than the Proposed Action	No negative impact or potential benefits to science of paleontology. Long term impacts likely similar to Proposed Action.	No negative impact or potential benefits to science of paleontology. Impacts similar to the Proposed Action likely to occur in other locations.	Similar but reduced/increased proportionate to size of future development.
Public Health & Safety	<ul style="list-style-type: none"> <li><i>Construction:</i> Risks to public health and contamination associated with construction equipment; safety risk of encountering unexploded munitions; risks of encountering abandoned mined lands.</li> <li><i>Operations:</i> large quantities of natural gas and Therminol VP1 would be used; no short- or long-term adverse human health effects are expected; risks of encountering abandoned mined lands; transmission line safety and nuisance hazards; traffic and transportation safety, including aviation safety; impacts to public and private airfields; and worker safety and fire protection impacts; and impacts associated with geologic hazards.</li> </ul>	Similar to the Proposed Action	Similar to the Proposed Action	Similar to the Proposed Action	Similar to the Proposed Action	Similar to the Proposed Action

**TABLE 2-5 (Continued)**  
**SUMMARY OF IMPACTS BY ALTERNATIVE**

Resource	ALTERNATIVES					
	Proposed Action	Dry Cooling Alternative	Reduced Acreage Alternative	No Action Alternative	No Project Alternative B	No Project Alternative C
Recreation	<ul style="list-style-type: none"> <li>• <i>Construction</i>: impacts from noise, fugitive dust, and truck and other vehicle ingress and egress to the construction site.</li> <li>• <i>Operations</i>: site not available for recreational use; minimal impacts to other lands in the vicinity of the proposed site due to increased usage; site viewable by users in nearby elevated areas.</li> <li>• <i>Decommissioning</i>: dust and noise impacts similar to construction; after decommissioning area would be reclaimed for recreational use.</li> </ul>	Operation, maintenance, and closure similar to Proposed Action.	Approximately 50% less than the Proposed Action	Similar to the Proposed Action.	Potential impacts could range from no impact to greater impact, depending on future site use.	Similar but reduced/increased proportionate to size of future development.
Social & Economics	<ul style="list-style-type: none"> <li>• <i>Construction</i>: Employment of 646 workers (average) and 1,085 workers (peak). Most, if not all, expected to live within two hours of site.</li> <li>• Any temporary lodging demand met by existing housing or lodging. No new housing or motel development induced.</li> <li>• Total direct construction spending benefits of \$165 million on labor and \$14.5 million on materials.</li> <li>• Additional total indirect and induced spending benefits of \$136.8 million and 358 jobs.</li> <li>• <i>Operations</i>: Annual employment of 65 workers of which at least 50% expected to live within two hours of site.</li> <li>• Any in-migration housing demand met by existing housing. No new housing growth induced.</li> <li>• Annual direct spending benefits of \$6 million on labor and \$0.5 million on materials.</li> <li>• Additional total indirect and induced spending benefits of \$3.9 million and 32 jobs.</li> <li>• <i>Decommission</i>: Temporary spending and employment benefit from deconstruction and site restoration work. Subsequent long term adverse impact from lost project jobs and spending.</li> </ul>	Same as Proposed Action	Similar but reduced proportionate to size of alternative	Similar to the Proposed Action	No Impact	Similar to the Proposed Action

**TABLE 2-5 (Continued)**  
**SUMMARY OF IMPACTS BY ALTERNATIVE**

Resource	ALTERNATIVES					
	Proposed Action	Dry Cooling Alternative	Reduced Acreage Alternative	No Action Alternative	No Project Alternative B	No Project Alternative C
Soils	<ul style="list-style-type: none"> <li><i>Construction:</i> total earth movement of approximately 1 million cubic yards. Wind erosion generated soil loss of 29.7 tons per acre per year, reduced from 72.88 tons per acre per year without the GSEP. Water erosion generated soil loss of 21.95 tons per acre per year, increased from 1.53 tons per acre per year without the GSEP.</li> <li><i>Operations:</i> Wind erosion generated soil loss of 1.25 tons per acre per year, reduced from 72.88 tons per acre per year without the GSEP. Water erosion generated soil loss of 6.93 tons per acre per year, increased from 1.53 tons per acre per year without the GSEP.</li> </ul>	Similar to Proposed Action	<p>Peak construction: same as Proposed Action.</p> <p>Long term construction: less than Proposed Action.</p> <p>Operation: less than Proposed Action. Aeolian erosion and transport would be reduced to near zero. Similarly, the impacts on the Chuckwalla and Palen-McCoy sand corridors or the eastern wash complex would be removed.</p>	No impact; potential for similar impacts in other locations.	No impact; potential for similar impacts in other locations.	Similar to Proposed Action
Special Designations	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact
Transportation and Public Access – Off Highway Vehicle Resources	<ul style="list-style-type: none"> <li><i>Construction:</i> temporary disturbance to motorized vehicles on local routes; traffic hazards from construction worker commuting and parking; increased traffic from construction activities; damage to roadways. Temporary closure of up to five OHV routes during construction of linears.</li> <li><i>Operations:</i> increased opportunities for vandalism, illegal cross-county use and other disruptive behavior from off-highway vehicles (OHV).</li> <li>No impact to overall access for wilderness recreation; some impact to sightseeing and day use touring by OHV users.</li> </ul>	Similar to Proposed Action.	Similar to Proposed Action	No impact to OHV routes and values; similar impacts to transportation.	No impact to OHV routes and values; similar impacts to transportation.	Similar impacts as Proposed Action.

**TABLE 2-5 (Continued)**  
**SUMMARY OF IMPACTS BY ALTERNATIVE**

Resource	ALTERNATIVES					
	Proposed Action	Dry Cooling Alternative	Reduced Acreage Alternative	No Action Alternative	No Project Alternative B	No Project Alternative C
Vegetation	1,773 acres vegetation communities lost; 90 acres ephemeral drainages lost; 196.5 acres sand dune habitat lost; 4 special status plant species impacted	Same as the Proposed Action in acreage, though indirect effects on vegetation may be reduced by reduction in groundwater pumping.	1,039 acres vegetation communities lost; 88 acres ephemeral drainages lost; 127.5 acres sand dune habitat lost; 4 special status plant species impacted. Indirect impacts on vegetation from groundwater use reduced by 50%. Eastern sand transport corridor not impacted.	Short term: no impact Long term: Similar to Proposed Action	No Impact	Short term: no impact Long term: Similar to Proposed Action
Visual	<ul style="list-style-type: none"> <li><i>Construction:</i> Mitigable short-term impacts from construction lighting and visible dust plumes; minor to moderate effects from large-scale visual disturbance in the landscape.</li> <li><i>Operations:</i> Short-term adverse and unavoidable impacts from glint and glare. Minor to moderate long-term impacts for ground-level viewers. Long-term adverse and unavoidable impacts in the cumulative scenario for dispersed recreational viewers in surrounding mountains.</li> <li><i>Decommissioning:</i> Mitigable short-term impacts prior to successful restoration.</li> </ul>	Similar to the Proposed Action; but dry cooling alternative would slightly increase the visual contrast of the GSEP from KOP-1.	Similar to the Proposed Action; the visual contrast remains the same for KOP-3, but would be slightly reduced from KOPs 1 and 2, as well as elevated viewpoints.	No Impact	No Impact	Future solar energy development could be expected to affect visual resources to the same degree and extent as referenced in the Proposed Action.
Water	<ul style="list-style-type: none"> <li><i>Construction and Operation:</i> Groundwater extraction of up to 1,368 acre feet per year for 3 years of construction, and 1,644 acre feet per year for operation from the Chuckwalla Valley Groundwater Basin. A fraction of this water could be drawn indirectly from induced flows from the Colorado River.</li> <li>Mitigable alteration of stormwater flows and drainage, including re-routing of existing flowpaths.</li> <li>Mitigable surface water quality effects including use of detention basis, spreading fields, drainage channels, and spill cleanup facilities during operation.</li> </ul>	Similar to the Proposed Action, although the operational use of groundwater is reduced to 218 acre feet per year.	Approximately 50% less than Proposed Action for groundwater consumption, similar to the Proposed Action for all others.	Short term: no impact Long term: Similar to Proposed Action	No Impact	Short term: no impact Long term: Similar to Proposed Action

**TABLE 2-5 (Continued)**  
**SUMMARY OF IMPACTS BY ALTERNATIVE**

Resource	ALTERNATIVES					
	Proposed Action	Dry Cooling Alternative	Reduced Acreage Alternative	No Action Alternative	No Project Alternative B	No Project Alternative C
Water (cont.)	<ul style="list-style-type: none"> <li><i>Decommissioning:</i> Mitigable water quality effects due to use of heavy machinery and re-grading of site to match adjacent topography.</li> </ul>					
Wild Horse & Burros	No Impact	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Wildland Fire Ecology	Increase in threat of wildland fires in area during construction (due to increased vehicle use) and during operation (due to increased likelihood of invasive annual plant spread).	Similar to Proposed Action	Similar to Proposed Action	Short term: no impact Long term: Similar to Proposed Action	No Impact	Short term: no impact Long term: Similar to Proposed Action
Wildlife	<ul style="list-style-type: none"> <li><i>Construction:</i> 1,774 acres wildlife habitat lost; 9 special status wildlife species impacted</li> <li><i>Operations:</i> disruption of migratory patterns; death or injury to individuals from striking powerlines, mirrors, arrays, poles or being struck by vehicles; increased predation.</li> </ul>	Same as the Proposed Action in acreage, though indirect effects on vegetation and related resources for wildlife may be reduced by reduction in groundwater pumping.	<i>Construction:</i> 1,039 acres wildlife habitat lost; 9 special status wildlife species impacted on 50% fewer acres than Proposed Action  <i>Operations:</i> Similar to Proposed Action	Short term: no impact Long term: Similar to Proposed Action	No Impact	Short term: no impact Long term: Similar to Proposed Action



## 2.6 Alternatives Considered but Eliminated From Detailed Analysis

In accordance with 43 C.F.R. 2804.10, the BLM worked closely with the project proponent during the pre-application phase to identify appropriate areas for their proposed project before filing an application with the BLM. BLM discouraged the applicant from including in their application alternate BLM locations with significant environmental concerns, such as critical habitat, Areas of Critical Environmental Concern, Desert Wildlife Management Areas, designated off-highway vehicle areas, wilderness study areas, and designated wilderness areas or other sensitive resources. BLM encouraged the Applicant to locate its project on public land with the fewest potential conflicts.

Other alternative sites and various renewable and nonrenewable generation technologies were considered but eliminated from detailed analysis under NEPA. These alternatives were eliminated from detailed analysis because one or more of the following criteria from the *BLM NEPA Handbook H-1790-1* (BLM 2008) apply:

1. It is ineffective (it would not respond to the BLM project purpose and need)
2. It is technologically or economically infeasible
3. It is inconsistent with the basic policy objectives for the management of the area (not conforming to the CDCA plan)
4. Its implementation is remote or speculative
5. It is substantially similar in design to an alternative that is analyzed
6. It would have substantially similar effects to an alternative that is analyzed.

Not all of these criteria from the BLM Handbook were used in eliminating alternatives from consideration as described in Table 2-6. Alternative sites, technologies, and methods were considered as alternatives to the GSEP but not carried forward for detailed analysis. The process for eliminating these alternatives from detailed analysis complies with 40 CFR 1502.14(a) and is described briefly in Table 2-6.

**TABLE 2-6**  
**ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED ANALYSIS**

<b>Alternative</b>	<b>Rationale for Elimination</b>
McCoy (see Figure 2-12)	An alternative site on BLM-administered land with a pending application for another project is not considered a reasonable alternative to the Proposed Action for purposes of alternatives analysis. Therefore, an alternative site on BLM-administered land with a pending application, such as the McCoy Alternative, would not be a reasonable alternative for the proposed GSEP project unless that other application is rejected or withdrawn.
Desert Center 1 (see Figure 2-12)	Desert Center 1 region was in an area that would potentially be subsumed in expansions of the Joshua Tree National Park and/or the McCoy Wilderness. In the fall of 2008, the BLM rejected the application for ROW grant for the use of this area.
Mule Mountain (see Figure 2-12)	According to California Natural Diversity Data Base (CNDDB) records, the site would support Desert Tortoise, Harwood's Milk Vetch, Cave Myotis, and California leaf-nosed bat (GSEP, 2009f). Both the proposed GSEP site and Mule Mountain site would have a large footprint and require extensive grading, potentially resulting in erosion and runoff. The Mule Mountain site is crossed by two large desert washes, potentially increasing the sediment flow in and around the site. Given the size required for solar power plants and the approximately 30-feet tall solar trough structures, visual impacts would be considerable. These adverse impacts would not be considerably less than the analyzed alternatives
Black Hill (see Figure 2-12)	NextEra applied for a right-of-way grant for the Black Hill Alternative but after additional examination including environmental concerns, road access, conflicting uses, and transmission option, the application was withdrawn (GSEP 2009a). Impacts to land use and recreation at the Black Hill Alternative would potentially be considerable as it is located adjacent to the Big Maria Mountains Wilderness and is crossed by three designated open routes (NECO Plan). The Black Hill Alternative site is crossed by ephemeral waters and washes that would likely be rerouted. Given that these environmental concerns would likely result in a similar degree of impact compared to the analyzed alternatives BLM eliminated this from further consideration.
Private Land Alternative (see Figure 2-12)	BLM has no decision making authority to select an alternative when BLM has no jurisdiction over the land(s) and/or resources. Therefore this is an unreasonable alternative for BLM to analyze. The Private Land Alternative is not considered further in this EIS because its implementation is remote and speculative and is ineffective in responding to the BLM's purpose and need to construct, operate, and decommission a solar thermal facility on public lands. Development of private land would depend upon the ability of a developer to acquire multiple, contiguous private land holdings covering a large area, which is not likely to be feasible in the project area.
Western ROW Alternative	There is concern regarding impacts to sand transport by wind from the two aeolian corridors (west along the Chuckwalla Valley parallel with I-10 and south down the Palen-McCoy valley), and water-based sand transport down the multiple alluvial fan channels that the site intersects. The western portion of the ROW would not accommodate a 125 MW solar field as configured for the proposed GSEP. Use of the western ROW would require longer linear infrastructure.
Reclaimed Water Alternative	Sufficient reclaimed water is not available and would not substantially reduce impacts to the water accounting system for the groundwater basin
Stirling Dish Technology (see Figure 2-13)	This solar energy technology would not substantially reduce impacts of the GSEP. BLM has no authority to require an applicant to use different technology than the applicant proposes. Also, this technology is not within the area of expertise of the applicant, and therefore would not likely be technically or economically feasible for them to implement. Therefore this is an unreasonable alternative for BLM to analyze.
Solar Power Tower Technology	This solar energy technology would reduce water use but would not substantially reduce impacts of the GSEP. BLM has no authority to require an applicant to use different technology than the applicant proposes. Also, this technology is not within the area of expertise of the applicant, and therefore would not likely be technically or economically feasible for them to implement. Therefore this is an unreasonable alternative for BLM to analyze.

**TABLE 2-6 (Continued)**  
**ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED ANALYSIS**

Alternative	Rationale for Elimination
Linear Fresnel Technology (see Figure 2-14)	BLM has no authority to require an applicant to use different technology than the applicant proposes. Also, this technology is not within the area of expertise of the applicant, and therefore would not likely be technically or economically feasible for them to implement. Therefore this is an unreasonable alternative for BLM to analyze.
Solar Photovoltaic Technology – Utility Scale (see Figure 2-14)	This solar energy technology would reduce water use but not substantially reduce impacts of the GSEP. BLM has no authority to require an applicant to use different technology than the applicant proposes. Also, this technology is not within the area of expertise of the applicant, and therefore would not likely be technically or economically feasible for them to implement. Therefore this is an unreasonable alternative for BLM to analyze.
Distributed Solar Technology	While it will very likely be possible to achieve 250 MW of distributed solar energy over the coming years, the limited numbers of existing facilities make it difficult to conclude with confidence that this much distributed solar would be available within the same timeframe as the proposed GSEP. Barriers exist related to interconnection with the electric distribution grid. Also, solar PV is one of the components of the renewable energy mix required to meet the California Renewable Portfolio Standard requirements, and additional technologies like solar thermal generation, would also be required. BLM has no authority to require an applicant to use different technology than the applicant proposes. This alternative was eliminated because it is ineffective in responding to the BLM's purpose and need to respond to the application at hand. In addition, it would likely be economically infeasible for the Applicant to implement.
Wind Energy	While there are substantial wind resources in Riverside County, environmental impacts could also be substantial so wind would not reduce impacts in comparison to the GSEP. Also, wind is one of the components of the renewable energy mix required to meet the California Renewable Portfolio Standard requirements, so additional technologies like solar thermal generation, would also be required. BLM has no authority to require an applicant to use different technology than the applicant proposes. This alternative was eliminated because it is ineffective in responding to the BLM's purpose and need to respond to the application at hand. In addition, it would likely be economically infeasible for the Applicant to implement.
Geothermal Energy	Despite the encouragement provided by Renewable Portfolio Standards and ARRA funding, few new geothermal projects have been proposed in the Imperial Valley and no geothermal projects are included on the Renewable Energy Action Team list of projects requesting ARRA funds. Therefore, the development of 250 MW of new geothermal generation capacity within the same timeframe as the proposed GSEP is considered speculative. BLM has no authority to require an applicant to use different technology than the applicant proposes. This alternative was eliminated because it is ineffective in responding to the BLM's purpose and need to respond to the application at hand. In addition, it would likely be economically infeasible for the Applicant to implement. In addition, it would likely be economically infeasible for the Applicant to implement due to the need for multiple siting and environmental review processes to achieve the same output of energy.
Biomass Energy	Most biomass facilities produce only small amounts of electricity (in the range of 3 to 10 MW) and therefore could not meet the project objectives related to the California Renewable Portfolio Standard. In addition, between 25 and 80 facilities would be needed to achieve 250 MW of generation, creating substantial adverse impacts. BLM has no authority to require an applicant to use different technology than the applicant proposes. This alternative was eliminated because it is ineffective in responding to the BLM's purpose and need to respond to the application at hand. In addition, it would likely be economically infeasible for the Applicant to implement. In addition, it would likely be economically infeasible for the Applicant to implement due to the need for multiple siting and environmental review processes to achieve the same output of energy.

**TABLE 2-6 (Continued)**  
**ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED ANALYSIS**

Alternative	Rationale for Elimination
Tidal Energy	Tidal fence technology is commercially available in Europe. However, it has not been demonstrated or proven at the scale that would be required to provide the same output as the Proposed Action, particularly with Pacific tides. BLM has no authority to require an applicant to use different technology than the applicant proposes. Tidal technology was eliminated from detailed analysis because it is ineffective in responding to the BLM's purpose and need to respond to the application at hand. In addition it would likely be economically infeasible, and remote and speculative, for the Applicant to implement.
Wave Energy	Wave energy is unproven technology at the scale that would provide the same output as the Proposed Action. BLM has no authority to require an applicant to use different technology than the applicant proposes. Tidal technology was eliminated from detailed analysis because it is ineffective in responding to the BLM's purpose and need to respond to the application at hand. In addition it would likely be economically infeasible, and remote and speculative, for the Applicant to implement.
Natural Gas	Natural gas would not attain the objective of generating renewable power meeting California's renewable energy needs. BLM has no authority to require an applicant to use different technology than the applicant proposes. This fossil fuel technology was eliminated from detailed analysis because it is ineffective in responding to the BLM's purpose and need to respond to the application at hand. Additionally, it is inconsistent with BLM's and the State of California's guidance concerning renewable energy.
Coal	Coal would not attain the objective of generating renewable power meeting California's renewable energy needs and is not a feasible alternative in California. BLM has no authority to require an applicant to use different technology than the applicant proposes. This fossil fuel technology was eliminated from detailed analysis because it is ineffective in responding to the BLM's purpose and need to respond to the application at hand. Additionally, it is inconsistent with BLM's and the State of California's guidance concerning renewable energy.
Nuclear Energy	The permitting of new nuclear facilities in California is not currently allowable by law. BLM has no authority to require an applicant to use different technology than the applicant proposes. Nuclear technology was eliminated from detailed analysis because it is ineffective in responding to the BLM's purpose and need to respond to the application at hand. Additionally, because it is currently prohibited in California, its implementation is remote and speculative.
Conservation and Demand-side Management	Conservation and demand-management alone are not sufficient to address all of California's energy needs, and would not provide the renewable energy required to meet the California Renewable Portfolio Standard requirements. This alternative was eliminated from detailed analysis because it is ineffective in responding to the BLM's purpose and need to respond to the application at hand.